CURTIS'S

BOTANICAL MAGAZINE,

COMPRISING THE

Plants of the Royal Gardens of Kew,

AND

OF OTHER BOTANICAL ESTABLISHMENTS IN GREAT BRITAIN,
WITH SUITABLE DESCRIPTIONS;

BY

JOSEPH DALTON HOOKER, M.D., C.B., P.R.S., F.L.S., &c.
D.C.L. OXON., LL.D. CANTAB., CORRESPONDENT OF THE INSTITUTE OF FRANCE.

VOL. XXXI.
OF THE THIRD SERIES;
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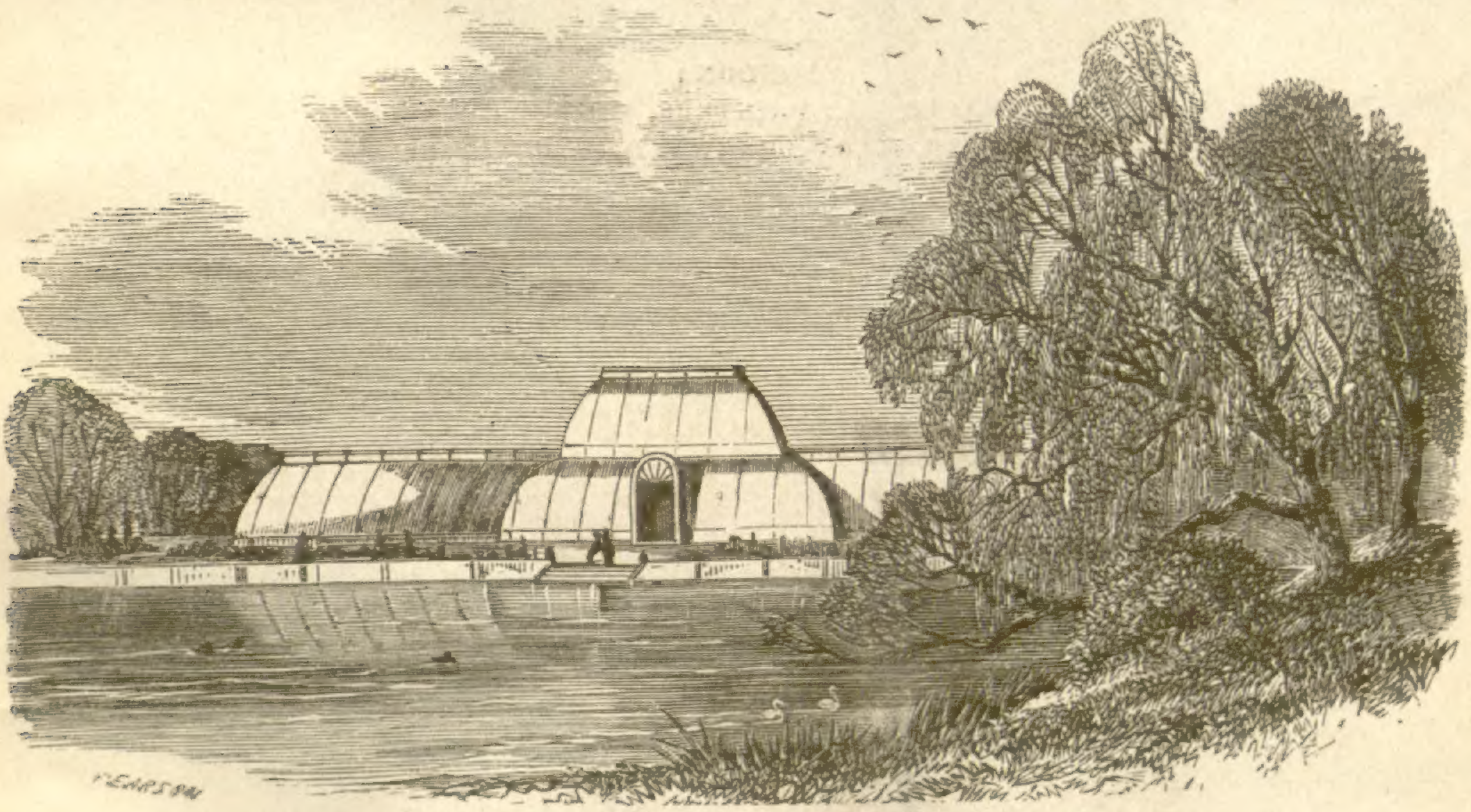

"A lily of a day
Is fairer far in May,
Although it fall and die that night—
It was the flower and plant of Light.
In small proportions we just beauties see;
And in short measures life may perfect be."

—BEN JONSON.

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Believe me ever,

Very sincerely yours,

JOS. D. HOOKER.

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December 1, 1875.

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Director of the Royal Botanic Gardens of Kew.

Nature and Art to adorn the page combine,
And flowers exotic grace our northern clime.

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Tab. 6140.

EUCALYPTUS cornuta.

Native of South-Western Australia.

Nat. Ord. Myrtaceæ.—Tribe Leptospermeæ.

Genus Eucalyptus, *L'her.*; (*Benth. & Hook. f. Gen. Plant.*, vol. i. p. 707).

Eucalyptus *cornuta*; arbor, ramulis gracilibus pallide rubris, foliis 3–4-pollicaribus elliptico-lanceolatis acuminatis glauco-viridibus, nervis obliquis intramarginali a margine remoto, pedunculis axillaribus robustis curvis modice a vertice compressis, floribus 6–40 in capitulum subglobosum cohærentibus sessilibus receptaculo non immersis, calyce conico-turbinato angulato operculo rubro in rostrum 2–3-pollicare obtusum robustum sensim attenuato, ovarii apice calyce non immerso conico in stylum gracilem attenuato, staminibus alabastro non inflexis extimis 3-pollicaribus, fructu turbinato truncato ore non contracto.

Eucalyptus cornuta, *Labill. Voy.*, vol. i. p. 403, t. 26; *DC. Prodr.*, vol. iii. p. 216; *Schauer in Plant. Preiss.*, vol. i. p. 127; *F. Muell. Fragment.*, vol. ii. p. 39, *excl. syn.*; *Benth. Fl. Austral.*, vol. iii. p. 234.

Amongst the wonderful forms of Australian vegetation this is not the least striking, whether from its singular structure or the colouring of its inflorescence. It is a native of South-Western Australia, where it was discovered by Labillardière in the beginning of the century; and from whence numerous dried specimens are in the Kew Herbarium, from Cunningham, Drummond, Oldfield, Harvey, and others, collected from King George's Sound eastward to Cape Riche. It is the "Yeit" of the colonists, and, according to Oldfield's notes, it must be a very variable tree, as he describes some specimens as from trees 10 feet high, others from trees 30 to 40 feet high, and others still from trees of 80 to 100 feet high. The bark he describes as rough, hard, persistent, and light brown in the larger trees; as black, and half fibrous in others; and as smooth in the smaller trees. At Kew, where two specimens are cultivated in tubs in the south octagon of the temperate house, it forms a slender tree,

about nine feet high, with smooth bark and spreading branches, as represented in the figure.

Eucalyptus cornuta was raised at Kew, from seed sent by Drummond many years ago, and flowers annually in about June from the old wood. The flower-heads and flowers of the cultivated plant are more than twice as large as those of any wild specimen in the Herbarium.

Descr. A small or large slender tree, with a bushy crown; branchlets slender, hardly drooping, red. *Leaves* three to four inches long, alternate, coriaceous, elliptic-lanceolate, acuminate, narrowed into a short red petiole; nerves obscure, oblique, the intra-marginal remote from the margin. *Flowers* six to forty, in a globose head four to six inches in diameter (including the operculum), closely cohering by their calyces, but not connate or sunk in the receptacle; peduncle very stout, curved, two inches long, compressed horizontally. *Calyx* half an inch long, green, turbinate, angled; operculum one to one and a half inches long, conical at the base, narrowed into a stout obtuse curved beak, bright red. *Stamens* forming a dense corona, three inches long, the inner shorter, filaments flaccid, yellow; anthers linear-oblong, cells parallel. Tip of *ovary* conical, not sunk below the margin of the calyx-tube, narrowed into a slender curved style. *Head of fruit* often three inches in diameter.—*J. D. H.*

Fig. 1, Reduced view of tree; 2, branch, leaves, and inflorescence; 3, calyx and ovary:—*of the natural size.*

1

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Tab. 6141.

CROCUS byzantinus.

Native of Transylvania and the Banat.

Nat. Ord. Irideæ.—Tribe Ixieæ.

Genus Crocus, *Tourn.*; (*Klatt in Linnæa*, vol. xxxiv. p. 674).

Crocus *byzantinus*; cormo parvo depresso-globoso, rete e fibris longitudinalibus gracilibus dense intertextis in vaginam foliorum basim cingentem producto, foliis 3–4 vernalibus $\frac{1}{3}$-poll. latis, floribus autumnalibus solitariis, perianthii tubo 4–6-pollicari ad medium vaginis albis tecto, limbo 3–$3\frac{1}{2}$ poll. diam. pallide purpureo v. lilacino, foliolis ellipticis acutis, interioribus pallidioribus v. albis dimidio minoribus, antheris flavis filamentis longioribus, stigmatibus purpureis apice capillaceo-7–10-fidis.

Crocus byzantinus, *Ker in Bot. Mag., sub tab.* 1111; *Herbert in Bot. Reg.* 1847, t. 4, f. 5; *et in Journ. Hort. Soc.*, vol. ii. p. 269; *Baker in Gard. Chron.* 1873, p. 1633.

C. banaticus, *Gay in Bull. Feruss.*, vol. xv. p. 220, *non Heuffel.*

C. speciosus, *Reichb. Pl. Crit.*, t. 1267–8, *non M. Bieb.*

C. iridiflorus, *Heuff. Œster. Bot. Wochenb.* 1857, p. 222; *Reich. Ic. Fl. Germ.*, vol. ix. t. 361, f. 802–3.

C. Hubertianus, *Kœrnike in Walp. Ann.*, vol. vi. p. 37.

Crociris iridiflora, *Schur. Sert.* 1853, p. 73.

Crocum montanum, *Clus. Hist.*, vol. i. p. 209.

Crocus byzantinus argenteus, *Parkins. Par.* p. 168, t. 169, f. 3.

A late autumnal species of Crocus, remarkable for its acute perianth segments, and the small size of the three interior of these. Its synonymy is numerous and intricate, and for this I am indebted to Mr. Baker's valuable paper on Croci in the *Gardeners' Chronicle*. It is one of the earliest introduced of the exotic species, being figured by Clusius in the very commencement of the seventeenth century (1601), from whom the specific name *byzantinus* is adopted, he having received it from Constantinople, where however it is unknown to

Griesbach, who enumerates it amongst the "Croci inquirendi" in his "Spicilegium Floræ Rumelicæ et Bithynicæ."

Crocus byzantinus has long been in cultivation at Kew and elsewhere, and the drawing was made partly from specimens communicated by Major Trevor Clarke, and partly from others that flowered in Kew in November last.

Descr. *Corm* three quarters to one and a quarter inches in diameter, depressed-globose, clothed with a light brown network of longitudinally interlaced fibres, that extends in a sheath for a short way round the base of the leaves, and sometimes also up the flowering-scape. *Leaves* three to four, produced in spring, dark green, one-third of an inch in diameter, with a central yellow rib towards the base only. *Sheaths* on the scape closed, white, reaching to about halfway between the flower and corm. *Perianth-tube* slender, white; limb three to three and a half inches in diameter, lilac-purple; segments elliptic-ovate, acuminate, very concave, the inner not half as large as the outer, sometimes white. *Stamens* included; anthers yellow, longer than the filaments. *Stigmas* purple, split at the top into from seven to ten slender segments.—*J. D. H.*

Fig. 1, Portion of sheath of corm; 2, stigmas:—*both magnified.*

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Tab. 6142.

JAMESIA americana.

Native of The Rocky Mountains.

Nat. Ord. Saxifrageæ.—Tribe Hydrangeæ.

Genus Jamesia, *Torr. and Gray*;—(*Benth. & Hook. f. Gen. Plant.*, vol. i. p. 643).

Jamesia *americana*; ramulis junioribus petiolis foliis subtus et inflorescentia laxe villosis, foliis ovatis obtusis crenato-dentatis supra glabris, paniculis brevibus terminalibus basi foliosis, calycis lobis rotundatis, petalis oblongis.

Jamesia americana, *Torr. & Gray Flor. N. Am.*, vol. ii. p. 593; *Walp. Ann.*, vol. ii. p. 614; *A. Gray Plant. Fendl.*, p. 55 *in nota*; *Carrière in Rev. Hortic.*, October, 1874, p. 389 *cum ic xylog.*

First described from imperfect specimens by Torrey and Gray, in 1840, and named by them "in commemoration of the scientific services of Dr. Edwin James, its worthy discoverer, the botanist and historian of Major Long's expedition to the Rocky Mountains in 1820, and who during the journey made an excellent collection of plants under the most unfavourable circumstances." Those were the days when every traveller in the Rocky Mountains carried his life in his hand, and when to hold it fast required the subtlety of the savage, plus the pluck of the white man. Little was known of this plant for many subsequent years, not until it was gathered by Fendler in 1847, and after another long interval by C. C. Parry, in 1861, in the very spot where James had discovered it—namely, the head-waters of Clear Creek, and on Alpine ridges east of Middle Park, in the Colorado territory, lat. 40° N. Considering the numerous collections that have been made in other parts of the Rocky Mountains, and that do not contain the *Jamesia*, it is evident that it is a very rare and local plant.

Though so much more like a Rosaceous plant in habit and inflorescence, *Jamesia* is truly saxifragaceous, and closely

allied to *Hydrangea*; it is quite hardy, and was raised at Kew about twelve years ago, from seed received, I believe, from Dr. Asa Gray, where, however, it has not flowered. For the plant here figured I am indebted to the Rev. Mr. Ellacombe, of Bitton, near Bristol, who flowered it in October last.

Descr. A branching shrub; branches opposite, covered with a loose, papery bark; branchlets, petioles, leaves beneath, and inflorescence clothed with soft villous pubescence. *Leaves* opposite, petioled, one to two inches long, ovate, obtuse, crenate-toothed, glabrous, but not shining above, with impressed veins; petiole one-quarter to one-third inch long. *Cymes* terminal, erect, shortly pyramidal, many-flowered, the lower branches leafy at the base. *Flowers* half an inch diameter; white, pedicels one-sixth inch long. *Calyx* villous, turbinate, 5-lobed, lobes rounded or broadly ovate, acute, white. *Petals* 5, spreading, oblong, obtuse. *Stamens* 10, the alternate shorter; filaments linear, flattened; anthers broadly oblong. *Ovary* conical; styles 3–5, stout, erect, stigmas subcapitate.—*J. D. H.*

Fig. 1, Flower; 2, the same, with the petals removed; 3, long and short stamens; 4, ovary:—*all magnified.*

Tab. 6143.

BLUMENBACHIA chuquitensis.

Native of Peru.

Nat. Ord. Loaseæ.

Genus Blumenbachia, *Schrad.*; (*Benth. & Hook. f. Gen. Pl.*, vol. i. p. 805).

Blumenbachia *chuquitensis;* setis urentibus elongatis laxe conspersa, caule erecto v. subvolubile robusto folioso ramoso, foliis longe petiolatis oblongis v. oblongo-lanceolatis pinnatifidis basi pinnatis, foliolis segmentisve ovatis pinnatifido-lobatis subtus dense pubescentibus, pedunculis erectis foliis brevioribus 1-floris, floribus $1\frac{1}{2}$–3 poll. diam. 5–10-meris, sepalis crenato-lobulatis, capsula globoso-turbinata.

Loasa chuquitensis, *Meyen, reise um den Erde*, vol. i. p. 483 in note. *Walp. in Nov. Act. Acad.*, vol. xix. Suppl. 1, p. 339; Rep. vol. v. p. 780.

A handsome Peruvian herbaceous plant, allied to the Chilian *B. coronata* (*Caiophora coronata*, Hook. & Arn.; see Haage & Schmidt in Revue Hortic. 1874, p. 58), but differing wholly in habit, this having a stout erect, or suberect and leafy stem, with the petioles and axillary peduncles shorter than the leaf-blade, and *B. coronata* being a tufted plant, with a short procumbent stem, very slender petioles much longer than the blade, and long scape-like peduncles rising from the ground. These two species are indeed so closely allied, that I was at first disposed to regard *B. chuquitensis* as an overgrown, erect, robust-branched specimen of the Chilian plant, with hypertrophied flowers; but besides the differences alluded to, this has much more entire sepals, and comes from much further north in the Andes. It was imported from Peru by Messrs. Veitch in 1863, through their collector, Mr. Pearce, and there are indigenous specimens in the Kew Herbarium, collected by Lechler in Peru, at San Antonio—a place I do not find in the maps. The capsule is slightly twisted when quite ripe, thus showing a passage from Blumenbachia to Caiophora, genera that are united in the

Genera Plantarum. The number of petals varies in the cultivated state from 5 to 10, but all are quite symmetrical.

B. chuquitensis flowered in Messrs. Veitch's establishment in September, and is quite hardy. (When first sent to view to be named, in 1865, it was supposed to be the *C. coronata*, under which name Mr. Veitch tells me that he has consequently distributed it.)

Descr. Whole plant laxly clothed with spreading shining stinging hairs, one-fifth of an inch long, also more or less stellately pubescent, especially upon the leaves beneath. *Stem* stout, erect, straight or flexuous, perhaps twining when full-grown, leafy. *Leaves*, including the petiole, eight to ten inches long; blade oblong-lanceolate, longer than the petiole, pinnatifid, the lower segments free, all ovate, irregularly pinnatifidly lobed, recurved, concave beneath. *Peduncles* axillary, two to four inches long. *Flowers* one and a half to two inches in diameter, brick-red, with five to ten petals. *Calyx* turbinate; lobes ovate-lanceolate, recurved, lobulate. *Petals* boat-shaped, rounded at the tip, setose at the back, bright brick-red, with yellow inside and on the outer margin on either side the tip. *Scales* cup-shaped, with three dorsal and two interior appendages. *Capsule* one and a half inches long, globosely turbinate, many-ribbed, slightly twisted when mature.—*J. D. H.*

Fig. 1, Scale and appendage:—*magnified.*

M^rs E C Wrigley del. W Fitch lith

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Tab. 6144.

ODONTOGLOSSUM maxillare.

Native of Mexico.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Odontoglossum, *H. B. & K.*; (*Lindl. Fol. Orchid. Odontoglossum*).

Odontoglossum *maxillare*; pseudobulbis anguste oblongis 3-pollicaribus, foliis lineari-lanceolatis subacutis carinatis, pedunculo brevi cum racemo 4–6-flore folio breviore nutante, bracteis membranaceis pedicello æquilongis, floribus $1\frac{1}{2}$–2-poll. diam., sepalis lanceolatis aristato-acuminatis albis basi macula fusco-rubra notatis, petalis æquilongis latioribus oblongis apiculatis albis basi purpureo-maculatis, labello parvo breviter unguiculato 3-lobo inter lobos laterales parvos retrorsum auctatos 2-calloso, lobo intermedio multo majore trulliformi recurvo margine undulato albo, disco basim versus macula 2-loba aurantiaca notato, columna brevi aptera.

Odontoglossum maxillare, *Lindl. in Bot. Reg. sub tab.* 62; *Fol. Orchid. Odontoglossum*, no. 23; *Reichb. f. in Walp. Ann.*, vol. vi. p. 834; *Lemaire Ill. Hortic.* t. 200.

Dr. Lindley first described this beautiful plant under the name it bears, from a single flower procured from Mr. C. B. Warner in 1847. Its native county was then unknown; but from its resemblance to *O. Cervantesii* and other species of Mexico, it was supposed, correctly as it has proved, to come from that country. A reference to Lindley's figure of *O. Cervantesii* (Bot. Reg., 1845, t. 36) shows that *O. Maxillare* is indeed closely allied to that plant, but differs essentially in the much longer oblong pseudobulbs, less petioled leaves, narrower sepals, much shorter wingless column, obtuse anther-case, different shaped lip, and in the colouring of the whole flower.

I am indebted to Messrs. Veitch for the use of a beautiful oil-painting of this plant by Mrs. E. G. Wrigley, from which the engraving here given has been made; the specimen which accompanied it was flowered by Mr. Wrigley at Broadoaks,

Bury, Lancashire, in November last, and was procured from Messrs. Veitch, who obtained it from Roezl.

DESCR. *Pseudobulbs* about three inches long, narrowly oblong, much compressed, pale green. *Leaves* five to seven inches long, narrowly lanceolate, acute, keeled, hardly petioled. *Racemes* 4–6-flowered, inclined, together with the rather stout peduncle shorter than the leaves. *Bracts* slender, membranous, brown; pedicel together with the ovary one and a half inches long, slender. *Perianth* nearly two inches in diameter. *Sepals* lanceolate, aristately acuminate, white, with a red-brown lobed spot at the base. *Petals* broader than the sepals, oblong, apiculate, with a livid purple-brown blotch at the base. *Lip* much smaller than the petals, recurved, claw short, hollowed; lateral lobes small, forming two recurved acute appendages to the claw; mid-lobe trowel-shaped, acuminate, with waved or crisped margins, white, with a broad 2-lobed orange blotch on the disk towards the base, behind which are two obtuse yellowish calli. *Column* very short, not winged; anther-case obtuse.—*J. D. H.*

Fig. 1, Flower, with sepals and petals removed; 2, front view of column and lip:—*magnified.*

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CONTENTS OF No. 361, JANUARY, 1875.

TAB. 6140.—EUCALYPTUS CORNUTA (Double Plate).

„ 6141.—CROCUS BYZANTINUS.

„ 6142.—JAMESIA AMERICANA.

„ 6143.—BLUMENBACHIA CHUQUITENSIS.

„ 6144.—ODONTOGLOSSUM MAXILLARE.

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WITH SUITABLE DESCRIPTIONS;

BY

JOSEPH DALTON HOOKER, M.D., C.B., P.R.S., F.L.S., &c.

Director of the Royal Botanic Gardens of Kew.

Nature and Art to adorn the page combine,
And flowers exotic grace our northern clime.

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Tab. 6145.

EPIDENDRUM SYRINGOTHYRSIS.

Native of Bolivia.

Nat. Ord. Orchideæ.—Tribe Epidendreæ.

Genus Epidendrum, *Linn.*; (*Lindl. Fol. Orchid.*, part 2, p. 1).

Epidendrum (amphiglottium) *syringothyrsis*; caulibus 4-pedalibus suberectis gracilibus fasciculatis foliosis, foliis alternis distichis e basi vaginante viridi elliptico-lanceolatis acuminatis recurvis coriaceis dorso carinatis læte viridibus, pedunculo spatha oblonga acuta brunnea vaginata rachique valido purpureis, racemo magno ovoideo densifloro nutante, floribus horizontalibus fusco-purpureis, bracteis parvis subulatis, pedicellis cum ovario 1–1½-pollicaribus gracilibus, perianthio 1 poll. diam., sepalis elliptico-lanceolatis subacutis, petalis æquilongis linearibus, labello ad apicem columnæ sessili parvo ad medium trilobo, lobis lateralibus subquadrato-rotundatis integris, intermedio minore subquadrato truncato apiculato, disco albo callis 3 lamelliformibus, columna clavata exalata utrinque juxta foveam biloba purpurea.

Epidendrum syringothyrsis, *Reichb. f. mss.*

A very tall and handsome species, which flowered in Mr. Veitch's fine Orchid collection in May, 1868, and again with a larger raceme than that here figured in the same month of the following year. It is a native of Bolivia, where it was collected, in 1866, by Messrs. Veitch's collector, the late Mr. Pearce, and is evidently a member of the immense section to which *E. evectum* (Tab. nost. 5902) belongs, and of which the type is the long known *E. elongatum*, Jacq. (Tab. nost. 611), which latter is one of the earliest cultivated tropical Orchids. From all its congeners that are known to me, it differs in the great size of the dense-flowered raceme, which, from its general resemblance to that of the Lilac in form and colour, has suggested to Professor Reichenbach, the specific name of *syringothyrsis*. Its nearest ally is *E. porphyreum*, Lindl., a native of Peru, which has a panicled inflorescence. Though long known under the name given above, no description of it has hitherto appeared. I have, however, confirmed the name by application to my friend Dr. Reichenbach, who at once for-

warded me a description. Dr. Reichenbach further informs me, that he has native specimens gathered in 1845 by Mandon in the Province of Laruaja, near Sorata, at elevations of 7–8000 feet.

Descr. *Stems* tufted, about four feet high, slender, erect, or inclined, leafy, terete; internodes one to two inches long. *Leaves* numerous, distichous, alternate; sheath green, cylindric, three to four inches long; blade six to seven inches long, recurved, elliptic-lanceolate, acuminate, keeled beneath, faintly nerved, deep green above, paler beneath. *Peduncle* shorter than the raceme, stout, terete, clothed with brown lax sheathing bracts, and as well as the rachis dark red-brown; rachis stout, grooved. *Panicle* five to seven inches long by four broad, inclined, broadly ovoid, obtuse, dense-flowered. *Flowers* very numerous, horizontal; bracts small, subulate. *Pedicel* and ovary together one to one and a half inches long, slender and as well as the perianth dull red-purple. *Perianth* one inch in diameter. *Sepals* spreading horizontally, elliptic-lanceolate or rather broader upwards, acute. *Petals* as long, but narrower. *Lip* sessile at the end of the column, small, 3-lobed, lateral lobes quadrate with rounded angles, quite entire; midlobe smaller, quadrate, with an apiculus at the truncate apex; disk white with three tumid yellow calli. *Column* clavate, not winged.—*J. D. H.*

Fig. 1, Reduced view of plant; 2, portion of stem, and a panicle:—*of the natural size*; 3, column and lip:—*magnified.*

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Tab. 6146.

LILIUM CANADENSE, VAR. PARVUM.

Native of California.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.

Genus Lilium, *Linn.*; (*Baker in Gard. Chron.*, 1871).

Lilium *canadense*, var. *parvum*; caule gracili stricto glabro 1–1½ pedali, foliis sparsis et verticillatis 1½–2 pollicaribus oblongo- v. obovato-lanceolatis obtusis v. subacutis 1–3-nerviis subundulatis marginibus scaberulis glabris, floribus parvis laxe subcorymbosis nutantibus longe gracile pedicellatis, pedicellis erectis ebracteatis, perianthio tubuloso-campanulato flavo-aurantiaco, foliolis supra medium patenti-recurvis oblanceolatis subacutis medium versus purpureo-maculatis, exterioribus paulo angustioribus, staminibus perianthio brevioribus, antheris majusculis flavis, stigmate capitato integro.

L. canadense *var.* parvum, *Baker in Journ. Linn. Soc.*, vol. xiv. p. 241.

L. parvum, *Kellog. in Proc. Calif. Acad. Nat. Sc.*, vol. ii. p. 179, t. 12; *Regel Gartenfl.*, vol. xxi. p. 163, t. 725; *Duchart. Obs.* 98.

I follow Mr. Baker's comprehensive account of the genus *Lilium*, published in the "Journal of the Linnæan Society," in referring this pretty Western American plant to a form of the Eastern American *L. canadense*, though before being convinced of their identity, I should like to have more knowledge of the fruit of the two plants than I have the materials to obtain. The fruit of *L. canadense* is linear-oblong, nearly an inch long in its largest state; that of a small specimen of *L. parvum* from Scott's Mountains, near the 42nd parallel, collected by Lyall, is subspherical in outline, truncate at the top, and about half an inch in diameter. Lastly, Regel in the Gartenflora describes the margins of the outer perianth segments of *L. parvum* as densely puberulous, which is not the case in the specimens before me.

The variety *parvum* inhabits a wide range of the mountains of Western America from British Columbia southwards, and appears to vary extraordinarily in stature and in the size of all its parts. The form here represented, was sent for

figuring from the fine collection of Messrs. Barr and Sugden, with whom it flowered in June of last year.

Descr. *Bulb* globose, of many fleshy narrow acute scales. *Stem* a foot to a foot and a half high, slender, erect, terete, quite glabrous. *Leaves* scattered or whorled or both on the same stem, one and a half to two inches long, sessile, oblanceolate or oblong-lanceolate, obtuse or subacute, glabrous with minutely roughened margins, undulate, obscurely 3-nerved, pale green, upper gradually smaller. *Flowers* laxly corymbose, drooping; pedicels three to four inches long, very slender, suberect, ebracteate. *Perianth* one to one and a quarter inches long, narrowly campanulate, bright orange-red with the tube greenish externally. *Perianth-segments* oblanceolate, spreading and recurved for the upper third, spotted with dark red-purple about the throat, subacute, the outer rather narrower, quite glabrous. *Stamens* shorter than the perianth, filaments slender; anthers rather large, yellow. *Ovary* oblong; style stout clavate, stigma capitate entire.—*J. D. H.*

Fig. 1, Inner, and 2, outer, perianth segments:—*magnified.*

W Fitch, del et lith

Vincent Brooks Day & Son. Imp

Tab. 6147.

VERONICA PINGUIFOLIA.

Native of New Zealand.

Nat. Ord. Scrophularineæ.—Tribe Veroniceæ.

Genus Veronica, *Linn.*; (*Benth. in DC. Prodr.*, vol. x. p. 458).

Veronica (Decussatæ) *pinguifolia*; fruticulus glaberrimus robustus ramosus glaucus, ramis oppositis v. suboppositis crebre cicatricatis erectis v. decumbentibus, ramulis puberulis, foliis imbricatis sessilibus erecto-patentibus obovatis v. obovato-oblongis obtusis integerrimis crasse coriaceis concavis enerviis, costa obscura subtus ecarinata, spicis confertis axillaribus et subterminalibus brevibus subglobosis densifloris pubescenti-pilosis, floribus sessilibus, bracteis coriaceis ciliatis, sepalis oblongis obtusis puberulis ciliatis, floribus albis, capsula obovato-oblonga obtusa compressa emarginata.

V. pinguifolia, *Hook. f. Handbook of New Zeal. Flora*, p. 210.

The shrubby Veronicas of New Zealand are a prevailing feature throughout the islands, at all elevations, and in almost all situations. Upwards of thirty species have been discovered, including some of remarkable beauty, of which *V. speciosa* (Tab. nost. 4057) and *V. salicifolia*, with their numerous varieties and hybrids, are the only ones well known in cultivation, except the less attractive *V. elliptica* (*V. decussata*, Ait., Tab. nost. 242), one of the earliest cultivated greenhouse shrubs of the Southern Hemisphere, and which inhabits New Zealand, Terra del Fuego, and the Falkland Islands. Amongst the least conspicuous of this group is the present plant, which is a native of considerable elevations (3000–5000 ft.) in the Nelson and Canterbury provinces of middle Island of New Zealand.

V. pinguifolia has been cultivated for several years both at Kew, and in Mr. Isaac Anderson Henry's garden near Edinburgh, where it was first raised from seed. It has stood in the open air throughout the winter without protection at Kew, and flowers in midsummer. It is very closely allied to

V. carnosula, another New Zealand species, distinguished by its acute glabrous capsule.

Descr. A stout erect or subprostrate woody shrub, four inches to four feet high; branches closely covered with leaf scars, the branchlets pubescent. *Leaves* one-sixth to one-half of an inch long, closely imbricate, erecto-patent, sessile, very thick and coriaceous, glaucous, obovate-oblong, obtuse, quite entire, nerveless, not keeled, midrib very obscure. *Flowers* one-third of an inch in diameter, in almost globose crowded axillary and subterminal dense-flowered spikes, quite sessile, white. *Bracts* as long as the calyx, convex, oblong, obtuse, ciliate, deciduous. *Sepals* oblong, obtuse, ciliate and pubescent. *Corolla-tube* equalling the calyx, lobes broadly ovate with rounded tips, veinless, the lower lobe half the size of the others, and more contracted at the base. *Filaments* not exceeding the corolla; anthers blue. *Ovary* pubescent; capsule obvate-oblong, emarginate, compressed, pubescent, as long as, or twice as long as the calyx.—*J. D. H.*

Fig. 1, Side view of flower; 2, corolla and stamen; 3, calyx and capsule: —*all magnified.*

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Tab. 6148.

FOURCROYA Selloa.

Native of Guatemala.

Nat. Ord. Amaryllideæ.—Tribe Agaveæ.

Genus Fourcroya, *Vent.*; (*Endl. Gen. Plant.*, p. 181).

Fourcroya *Selloa*; caudice brevi robusto, foliis perplurimis dense confertis undique patentibus strictis 3-pedalibus carnoso-fibrosis anguste ensiformi-lanceolatis supra basim angustatis attenuato-acuminatis margine remote spinosis, spinis incurvis mucroneque terminali tenui deciduo castaneis, utrinque supra basim subcarinatis, subtus asperis secus costam basim versus remote spinosis, scapo 15–20 pedali stricto remote bracteato, paniculæ amplæ laxæ ramis erecto-patentibus, bracteis parvis ovato-lanceolatis viridibus, floribus pendulis 2–2½ poll. diam. breviter pedicellatis, ovario parvo anguste oblongo, perianthii foliolis oblongis obtusis dorso fere albis intus viridibus late albo-marginatis, filamentis triangulari-subulatis perianthio multoties brevioribus, antheris parvis flavis.

F. Selloa, *K. Koch in Wochenschrift*, 8 *jahrg.*, p. 22; *Jacobi in Hamburg Garten Zeit.*, vol. xxii. p. 408.

The plant here figured was named as above by General Jacobi on his visit to Kew some years ago (in 1865, I think). It is described in his monograph of the genus published in Otto's Gartenflora in 1866; as also previously by Karl Koch, but from foliage only. I am not aware that it has flowered anywhere but at Kew, where two individuals in the spring of last year sent up flowering scapes, which pushing rapidly upwards, were allowed to protrude through the roof of the Succulent House, and expanded in magnificent panicles in September. They continued flowering till November, and formed bulbils in the branches of the panicle as well as flowers. At the same time, three other fine plants of the same class flowered in the same house, and required exit through the roof—namely, *Agave americana* and two specimens of *Dasylirium acrotrichum*.

F. Selloa is a native of Guatemala, and has long been

cultivated at Kew, where it was received from the Continental gardens.

Descr. Trunk one foot high, clothed with brown remains of old leaves. *Leaves* forming a nearly-rounded coma six feet in diameter, spreading on all sides, straight, rigid, bright green, narrowly lanceolate-ensiform, contracted above the base, gradually narrowed into a long, pungent, deciduous, chestnut-brown spine; margin with remote, incurved, horny, chestnut spines, a quarter of an inch long; upper surface concave and granular, convex and almost keeled at the contracted part; lower surface rough, with close set points, convex, raised along the middle line towards the base and there armed with a few spines. *Scape* fifteen to twenty feet high, slender, strict, green, with a few small sub-erect lanceolate-subulate bracts. *Panicle* four to six feet high, spreading, laxly branched; branches slender, erecto-patent, laxflowered. *Bracts* at the bases of branches small, green. *Flowers* two inches in diameter, rather crowded on short branchlets, drooping, very shortly pedicelled; bracteoles small, green, subulate. *Ovary* oblong, half an inch long. *Perianth-segments* equal, elliptic-oblong, rounded at the apex, spreading and incurved, almost white externally; internally green, with a broad white margin. *Stamens* about one-third the length of the perianth. *Filaments* fleshy, triangular-subulate, greenish white; anthers small, yellow. *Style* subulate.

Fig. 1, Whole plant, *reduced*; 2, leaf, *reduced*; 3, portion of leaf; and 4, of panicle:—*of the natural size.*

W. Fitch. del. et lith.

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Tab. 6149.

SENECIO macroglossus.

Native of South Africa.

Nat. Ord. Compositæ.—Tribe Senecionideæ.

Genus Senecio, *Linn.*; (*Benth. & Hook. f. Gen. Plant.*, vol. ii. p. 446).

Senecio *macroglossus;* alte scandens, glaberrimus, lucidus, caule volubili cylindraceo tereti, foliis petiolatis triangulari-hastatis acutis, lobis lateralibus simplicibus dentatis v. pauci-lobulatis acuminatis, pedunculis axillaribus et terminalibus 1-flores gracilibus elongatis pauci-bracteatis, involucri squamis lineari-oblongis acuminatis, exterioribus patentibus apicibus non sphacelatis, quam interioribus erectis conniventibus æquilongis angustioribus, floribus radii 8–12, ligulis pollicaribus late elliptico-oblongis apice minute 3-dentatis, disci ad 40, pappi setis gracilibus albis, achænio cylindrico glabro multistriato.

S. macroglossus, *DC. Prodr.*, vol. vii. p. 404; *Harv. & Sond. Fl. Cap.*, vol. iii. p. 403.

A remarkably handsome plant, and one fitted for dwelling-room culture, its Ivy-like glossy leaves being evergreen, its large flowers produced in mid-winter, and its habit well adapted for a trelliswork. I have indeed heard of either this or an allied species being cultivated in drawing-rooms abroad, and trained round the walls beneath the ceiling. Like most Cape plants, it wants very careful watering and plenty of fresh air. It is the largest flowered species of the enormous genus to which it belongs, and which contains nearly one thousand species, and the flowers remain for a considerable period in perfection. According to the Flora Capensis, *S. macroglossus* extends from the Keiskamma river (west of Algoa Bay) to Natal, but the only specimen we have that precisely agrees with the cultivated plant was collected by Mr. Sanderson on the Palmiet river, immediately to the east of Table Bay in the Western Cape district.

The specimen figured is from a plant cultivated in the Succulent House at Kew, where it is trained upon one of the rafters, and forms a very ornamental feature, blossoming at

Christmas; it was raised from seed sent by Mr. Sanderson in 1868.

Descr. Quite glabrous, lucid, shining. *Stems* slender, twining, climbing trees for many feet, cylindric, terete, red-brown below; branches green. *Leaves* alternate, petioled, one and a half to two and a half inches in diameter, triangular, acute or acuminate with acuminate simple lobed or toothed lateral lobes, base deeply cordate with a narrow sinus, dark glossy-green above, pale beneath, rather fleshy, nerves palmate as in the Ivy. *Peduncles* terminal and axillary, three to five inches long, slender, green, naked or with a few scattered subulate green bracts. *Heads* two and a half inches across. *Involucre* one inch long; outer scales or bracteoles spreading and incurved, narrow linear, acuminate, as long as the inner, which are broader, acute, erect, and connivent into a cylinder, tips of all green. *Ray-flowers* eight to twelve, very large; limb one and a half inches long, elliptic, pale yellow, with three minute blunt teeth at the much contracted tip; disk-flowers about forty, small. *Pappus* of fine soft hairs. *Achene* slender, terete, striate.—*J. D. H.*

Fig. 1, Ray-; and 2, disk-flowers:—*both magnified.*

Tab. 6150.

ERYTHROTIS Beddomei.

Native of Malabar.

Nat. Ord. Commelyneæ.

Genus Novum, Erythrotis, *Hook. f.*

Char. Gen. *Sepala* 3, æqualia, libera. *Petala* 3, æqualia, libera, orbiculata, membranacea, obscure unguiculata. *Stamina* 6, omnia fertilia et æqualia, filamentis filiformibus supra medium longe barbatis; antherarum loculis connectivum marginantibus, superne divergentibus. *Ovarium* 3-loculare; stylus filiformis, glaberrimus, apice non incrassatus, stigmate punctiformi; ovula in loculis 2, superposita, superiore adscendente, inferiore pendulo. *Capsula* . . . .—Herba Malabarica, *prostrata, villosa.* Folia *carnosula, disticha, subimbricata, ovato-cordata, acuta.* Flores *parvi, rubri, ad apices ramulorum breviter racemosi, pedicellis brevibus geminis unibracteatis.*

A singularly beautiful little plant, and one easy of cultivation, discovered by Col. Beddome, F.L.S., on dry bare rocks, at an elevation of 3–4000 feet, in the Myhendra mountains of South Travancor, from whence he sent seeds to Kew, where plants raised from which flowered in December last. It appears to me to be a new genus, closely allied to *Cyanotis*, but differing in its prostrate habit, inflorescence, the arrangement of the bracts, perfectly free sepals, and filiform style, without an inflation below the stigma. The filaments are quite those of *Cyanotis;* and it is remarkable that whilst the calyx and corolla are red, the beards of the filaments are bright blue (as in *Cyanotis*). The brilliant colouring of the under surface of the leaves is a very unusual character in the group of *Commelyneæ*, to which it is most allied.

Erythrotis Beddomei is a stove plant, but well adapted for a warm conservatory during summer, when it may be trained over the pots and made very ornamental; the colouring of the under surface of the leaves is however very variable, and pales much in winter.

Descr. Whole plant villous, with spreading hairs that turn brown in drying. *Branches* starting from a primary stout erect shoot with lanceolate large spreading leaves, three to six inches

long, spreading from the root, appressed (except at their upturned tips) to the ground, stout, densely leafy. *Leaves* one to one and one-half inches long, rather fleshy, translucent, close-set, imbricating, distichous, spreading horizontally, ovate-cordate, acute, sessile on their sheaths, green and convex above with recurved purple tips, margins recurved, bright red beneath; nerves seven to nine, obscure; sheaths one quarter of an inch long, cylindric, fringed with long cilia. *Flowers* four to eight racemed in pairs on short peduncles at the ends of the branches and branchlets, one-third of an inch in diameter, shortly pedicelled, each with one elliptic-oblong bract on the pedicel. *Sepals* three, perfectly free, ovate-oblong, acute, hispid on the back. *Petals* orbicular, quite free, membranous, red, nerveless, very shortly clawed. *Stamens* rather longer than the petals, filaments filiform, beards blue; anthers yellow. *Cells* slightly diverging upwards. *Ovary* hispid, 3-celled; style slender, filiform, quite glabrous, stigma punctiform; ovules two in each cell, superposed, upper ascending, lower pendulous.—*J. D. H.*

Fig. 1, Flower; 2, calyx and ovary; 3, stamens:—*all magnified.*

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CONTENTS OF No. 362, FEBRUARY, 1875.

TAB. 6145.—EPIDENDRUM SYRINGOTHYRSIS.
" 6146.—LILIUM CANADENSE, Var. Parvum.
" 6147.—VERONICA PINGUIFOLIA.
" 6148.—FOURCROYA SELLOA.
" 6149.—SENECIO MACROGLOSSUS.
" 6150.—ERYTHROTIS BEDDOMEI.

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BY

JOSEPH DALTON HOOKER, M.D., C.B., P.R.S., F.L.S., &c.

Director of the Royal Botanic Gardens of Kew.

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And flowers exotic grace our northern clime.

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Wednesday, March 17th. (Hyacinth Show.)
Wednesday, April 7th.
Wednesday, April 21st.
Wednesday, May 12th. (Pot Rose Show.)
Wednesday, May 26th.
Wednesday, June 2nd. (Great Summer Show.)
Wednesday, June 16th.
Wednesday, July 7th.
Wednesday, July 21st. (Zonal Pelargonium Show.)
Wednesday, August 4th.
Wednesday, August 18th.
Wednesday, September 1st.
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Tab. 6151.

GUSTAVIA gracillima.

Native of New Grenada.

Nat. Ord. Myrtaceæ.—Tribe Lecythideæ.

Genus Gustavia, *Linn.*; (*Benth. & Hook. f. Gen. Plant.*, vol. i. p. 721).

Gustavia *gracillima*; glaberrima, foliis elongato-lineari-lanceolatis (junioribus brevioribus et latioribus) acuminatis in petiolum pollicarem angustatis serratis marginibus undulatis creberrime nervosis, floribus 4-poll. diam. axillaribus solitariis v. binis roseis. pedicellis 1–1½ pollicaribus medio 2-bracteolatis glabris, calyce brevissimo 4-lobo, lobis latioribus quam longis obtusis, petalis ad 8 obovato-oblongis apice rotundatis glaberrimis, filamentis purpureis, ovario pubescente ecostato.

G. gracillima, *Miers in Trans. Linn. Soc.*, vol. xxx. p. 181.

The genus *Gustavia* contains, according to Mr. Miers' new revision of it in the Linnean Transactions, upwards of twenty species, natives of various tropical parts of the South American Continent. Of these the only one hitherto figured from living specimens in Europe is the beautiful *G. insignis* (Tab. nost. 5069), which flowered in Kew in 1858, and yet all the other species are as beautiful, and some, like that now figured, far more highly coloured than that superb plant. The present is a young plant which differs from the full grown state of the same in the shorter and broader leaves, which have since the drawing was made, attained on the plant a length of thirteen by one and one-half inches, and in indigenous specimens they are fifteen to eighteen inches by three-quarters to one inch. It is a native of New Grenada, where it was discovered by Purdie in the woods of Carmin, in 1845, forming a singular small tree flowering on its slender, lofty trunk, in July.

The specimen here figured was sent by Mr. Bull from his establishment at Chelsea, where it flowered in September of last year; it was collected by Roezl in New Grenada.

Descr. A tree with a slender trunk, quite glabrous every-

where; *branches* with pale bark, densely leafy at the tips. *Leaves* close-set, spreading and recurved, fifteen to eighteen inches long by one to one and a-half inches broad, oblanceolate in the young plants, much longer and more narrow in the old ones, acuminate, serrate, narrowed into a slender petiole about one to two inches long, margin somewhat waved, midrib prominent beneath; veins numerous, close-set, arched, very slender. *Flowers* four inches in diameter, rose-red, produced from the leaf-axils in the young plant, from the wood in old ones, solitary or in pairs. *Peduncle* one to two inches long, stout, clavate, with small orbicular appressed bracts at the base, and two opposite ovate, small, appressed bracteoles about the middle. *Calyx* very short, with four broad obtuse lobes. *Petals* about eight, obovate-oblong, rounded at the tip, glabrous on the back. *Staminal-tube* yellow; filaments dark purple; anthers numerous, most densely packed, linear. *Ovary* pubescent at the top, style very small, pointed.—*J. D. H.*

Fig. 1, Peduncle, calyx, and ovary; 2, portion of staminal tube, filaments, and anthers; 3, filament and anther:—*all magnified.*

W Fitch del et lith

Vincent Brooks Day & Son, Imp

Tab. 6152.

MASDEVALLIA Chimæra.

Native of New Grenada.

Nat. Ord. Orchideæ.—Tribe Pleurothallideæ.

Genus Masdevallia, *Ruiz. & Pav.*; (*Lindl. Gen. & Sp. Orchid.*, p. 192).

Masdevallia *Chimæra;* caulibus fasciculatis, foliis 6–8-pollicaribus linearioblanceolatis acutis basi angustatis sed vix petiolatis carinatis, scapis curvis foliis brevoribus robustis 5–6-bracteatis, floribus horizontalibus, sepalis basi in tubum brevem late campanulatum profunde sulcatum connatis dein late ovatis in caudas tripollicares filiformi-subulatas abrupte angustatis citrinis sanguineo maculatis, intus pilis longis vestitis, marginibus reflexis, petalis brevibus cuneato-oblongis, labello breviter stipitato oblongo saccato, marginibus inflexis dentatis, nervis intus carinatis, columna acuta.

M. Chimæra, *Reichb. f. in Gard. Chron.*, 1872, p. 463; and 1875, p. 41, *cum ic. xylog. Xen. Orchid.*, vol. ii. p. 195, t. 185; *André Rev. Hortic.*, t. 117, 118.

A very singular plant, of which M. André says in the Illustration Horticole, that no name more applicable could be found for it than that given by Professor Reichenbach—namely, that of the offspring of Typhon and Echidna, which had the body of a goat, the head of a lion, and tail of a dragon, and which vomited flames of fire. Without pushing the simile to an extreme, there is enough in the grotesque and almost threatening appearance of this plant, due to the arched flower-stalk and protruded flower, like the head and body of a viper about to strike, to justify Prof. Reichenbach's happy fancy in giving it the trivial name alluded to. Nor is it at all destitute of beauty; and though not so gorgeously coloured as *M. ignea* (Tab. nost. 5962), or *M. Lindeni* (Tab. 5990), it is well worthy of cultivation, and a plant likely to lend popularity to a genus of which new species are being yearly imported, and which for number and variety of species, facility of growth and neatness of habit, would alone satisfy the wants of a moderate collector of Orchids. Indeed,

it is much to be wished that Orchid fanciers, who take an intelligent interest in the Order, would, according to their means, make their collections famous for completeness in one or a few of the larger and less pretentious genera, as well as for the production of gigantic specimens of the showy kinds. As it is, England is the grave of Orchids; of the millions imported but a few hundreds survive the first few years, and this very much because every collector forms a miscellaneous collection, wherein it is impossible to meet the requirements of any but the most indifferent to the treatment the generality may experience.

M. Chimæra is a native of deep valleys in New Grenada, where it was discovered by Roezl, and imported by M. Linden in 1872. For the splendid specimen here figured I am indebted to Mr. Bull, who flowered it in December last.

Descr. *Stem* tufted. *Leaves* six to nine inches long, narrowly oblanceolate, acute, narrowed at the base, which is clothed with four to six sheaths, keeled. *Scape* shorter than the leaves, arched, stout, with five or six green appressed sheaths. *Flowers* eight inches long from tip to tip of the dorsal and lateral sepals, yellow, spotted with blood-red. *Ovary* small, curved, red-brown. *Perianth-tube* shortly campanulate, deeply 6-grooved. *Sepals* three-quarters of an inch broad, broadly obovate, hispid with soft spreading hairs on the inner surface, suddenly contracted into slender, red purple tails, three inches long, margins reflexed. *Petals* very short, one-sixth of an inch long, spathulate, expanded at the tip into four spreading lobes, with a thick red caruncle between the lobes. *Lip* one-third of an inch long, slipper-shaped, with inflexed toothed margins, and keeled ribs within, white. *Column* as long as the petals, acute.—*J. D. H.*

Fig. 1, Ovary, lip, petals and column :—*magnified.*

Vincent Brooks Day & Son Lith

Tab. 6153.

COLCHICUM LUTEUM.

Native of Kashmir and Affghanistan.

Nat. Ord. Melanthaceæ.

Colchicum *luteum;* cormo pollicari dimidiato-globoso, tunicis lævibus castaneis membranaceis, vaginatis foliis 3–4 linearibus obtusis demum elongatis 6 pollicaribus $\frac{1}{4}$–$\frac{1}{3}$ poll. latis, floribus 1–3 cum foliis coætaniis luteis, perianthii tubo 2–3 pollicari, limbi segmentis pollicaribus lineari-oblongis obtusis, antheris luteis linearibus filamenta basifixa longe superantibus, stigmatibus luteis filiformibus elongatis exsertis, carpellis pollicaribus superne liberis in stylos attenuatis.

C. luteum, *Baker in Gard. Chron.*, 1874, p. 33.

Melanthaceæ, *Griff. Posth. Papers*, vol. ii. p. 328.

Mr. Baker, who described this pretty little plant from dried specimens preserved in the Hookerian Herbarium, remarks that it would be a great acquisition to our stock of cultivated Colchicums, and would no doubt be hardy in our English gardens; also, that it is the only yellow-flowered kind hitherto known, all the others being of a purple colour running off into white. As a species it belongs to the Mediterranean group, with leaves and flowers produced at the same time, and both in spring. It is a native of the mountains in the extreme West of India beyond the Indus, in Hazara, at an elevation of 7000 feet, where it flowers in December and January. An apparently identical plant has been gathered by Dr. Thomson, F.R.S., in the valley of Kashmir, at an elevation of 5–7000 feet, flowering in June; by Stocks in Beluchistan; and by Griffith, who is the discoverer of the species, in Kafferisthan, near Otipore, about the year 1840, flowering in April at an elevation of 6–7000 feet. It has also been gathered by Stocks in upper Beluchistan, and by Henderson in the Zoji pass in Kashmir. For the specimens here I am indebted to Dr. Atchison, F.L.S., of the Indian Medical Service, an ex-

cellent botanist, who communicated the bulbs by post, in 1874, to Kew, where they flowered in January of the present year, and from whom we have dried specimens from Abbottabad, in Hazara, with much narrower leaves than his own, the cultivated ones, or those from Kashmir and Affghanistan.

Descr. *Corm* one to two inches long, by three-quarters to one inch thick, almost halfmoon-shaped, slightly laterally compressed, pointed bluntly at the base; sheaths smooth, membranous, dark brown, the inner often produced upwards into a tube round the leaves. *Leaves* three to four, produced with the flower, sheathed at the base, narrow linear-ligulate, obtuse, concave, three to four, at length six to seven inches long, bright green. *Flowers* two to three, bright and almost golden yellow. *Perianth-tube* two to three inches long, slender, white, sometimes purple in wild specimens; limb one inch long, about two and a half inches broad when expanded; segments linear-oblong, rather broader upwards, obtuse. *Stamens* extending two-thirds up the perianth limb; anthers linear, basifixed, much longer than the filaments. *Styles* filiform, exserted. *Capsule* two-thirds to one inch long, ovoid, of three brown leathery carpels, free at the top and narrowed into the style-bases.—*J. D. H.*

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Tab. 6154.

THEROPOGON pallidus.

Native of the Himalaya Mountains.

Nat. Ord. Liliaceæ.—Tribe Smilaceæ.

Genus Theropogon, (*Maxim. in Bull. Acad. St. Petersb.*, vol. xv. p. 89).

Theropogon *pallidus;* glaberrimus, cæspitosus, foliis distichis erecto-recurvis gramineis acutis planis 1–3-nerviis basi membranaceo-vaginatis, scapis erectis foliis brevioribus strictis angulatis ancipitibus v. 2–3-alatis, racemis erectis vix nutantibus 6–16-floris, bracteis linearibus acutis viridibus pedicellis nudis curvis brevioribus, floribus nutantibus campanulatis pallide roseis cum pedicello articulatis, peranthii segmentis ovatis, filamentis brevibus dilatatis antheris acutis latioribus, ovarii globosi loculis 6–10-ovulatis, stylo stricto, stigmate punctiforme, bacca pisiformi oligosperma, seminibus compressis, testa tenuissima albumini corneo adhærente.

T. pallidus, *Maxim. l. c.*

Ophiopogon? pallidus, *Wall. Cat.*, 2138; *Kunth. Enum.*, vol. v. p. 300.

? O. mollis, *Royle Ill.*, 382 (nomen tantum).

O. brevifolius, *Royle Herb.*

A very common Himalayan plant, from Kumaon, alt. 6000 feet, to Nepal and Sikkim, in which latter county it ascends to 10,000 feet; also common in the Khasia mountains, where it is found at 5–6000 feet towards the tops of the hills. It prefers mossy rocks, and the bases of old trees, when the roots run rather superficially in the loose soil.

This plant was long regarded as a doubtful *Ophiopogon*, from which its soft habit at once distinguishes it, a character that makes me suspect that it is Royle's *O. mollis*, a plant of which no authentic specimens are known to exist, except the plant called *brevifolius* in Mss. Herb. (at Kew), and which is not alluded to in his Himalayan Botany, be the same. From *Ophiopogon* it further differs in its annual foliage, berried fruit, broad filaments, free base of the ovary, many ovules, the seed not being exposed by the rupture of the pericarp, as in that genus, and the excessively thin adherent testa.

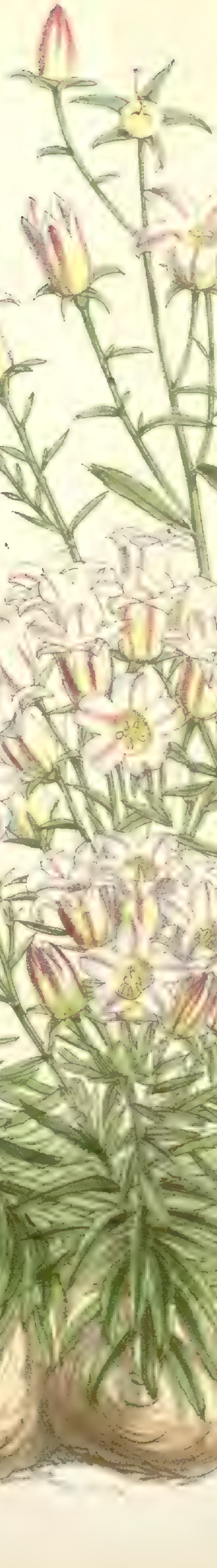
March 1st, 1875.

Our specimens were received from the rich collection of W. W. Saunders, Esq., late of Reigate, raised from seed.

Descr. Densely tufted, perfectly glabrous throughout. *Roots* of stout fleshy tortuous fibres. *Leaves* distichous at the base, and then clothed with long membranous sheaths, grassy, each six to eighteen inches long, a quarter to half an inch broad, erect and recurved, acuminate, soft, with a distinct midrib and many slender nerves, margin quite entire, rather glaucous beneath. *Scape* shorter than the leaves, very slender, erect, with two or three sharp angles or narrow wings. *Raceme* two to four inches long, 6–16-flowered, erect or slightly nodding, rachis compressed, bracts linear-subulate, green, shorter than the curved pedicels. *Flowers* campanulate, pale rose-red, one-third inch in diameter. *Perianth-segments* ovate, subacute, rather fleshy, nerveless. *Stamens* very short; filaments broadly orbicular-obovate, fleshy; anther sessile on the filament, narrower than it is, ovate, acute, cells diverging. *Ovary* globose, 3-celled; *style* strict, stigma minute; ovules six to ten in each cell. *Berry* size of a pea, with few compressed brown very hard seeds; testa extremely thin, adherent to the horny albumen.—*J. D. H.*

Fig. 1, Flower; 2, the same cut vertically; 3, stamens; 4, tranverse section of ovary; 5, ditto entire; 6, fruit:—*all but* 6 *magnified.*

3



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Tab. 6155.

WAHLENBERGIA tuberosa.

Native of Juan Fernandez.

Nat. Ord. Campanulaceæ.—Tribe Wahlenbergieæ.

Genus Wahlenbergia, *Schrad.*; (*Endl. Gen. Pl.*, p. 516).

Wahlenbergia *tuberosa*; glaberrima, rhizomate e tuberibus epigæis confertis subglobosis diametro juglandis, caulibus gracillimis erectis 6–24-pollicaribus laxe ramosis et foliosis, foliis pollicaribus patulis linearibus acutis obtusisve dentatis 1-nerviis, floribus erectis apicem versus caulis paniculatis, ovario obconico, calycis segmentis linearibus patenti-recurvis utrinque, 1–2-dentatis, corolla campanulata $\frac{1}{2}$ poll. longa alba rubro-vittata, lobis brevibus recurvis, filamentis glabris tubo corollæ ter brevioribus.

I find no description answering to this very curious and beautiful plant, nor any specimens in the Herbarium, which is the more remarkable as the Island from which it comes has been visited by several botanists, who have detected there two other species of *Wahlenbergia*. These are both much taller and stouter plants, with broader serrated leaves and much larger flowers. In the whole genus, which is a tolerably uniform one in habit, I know of no feature so remarkable as the tuberous rootstock of this, which resembles a cluster of small potatoes placed on the top of the pot; the contrast of these grotesque objects, with the exquisitely graceful thread-like stems and profusion of pearl white rose-streaked blossoms, is exceedingly striking, and recommends the plant as a most desirable one for greenhouse and probably out-of-door culture. Of course care must be taken not to over-water the plant when past flower, or the tubers will soon rot.

Messrs. Veitch sent the plant here figured, in full flower in September of last year, together with another specimen, nearly two feet high. They received it from Juan Fernandez, where it was discovered by their collector, Mr. Downton, in 1873.

March 1st, 1875.

Descr. Quite glabrous. *Rootstock* of clustered subglobose woody tubers, one to one and a half inches in diameter, irregularly constricted on the surface concentrically. *Branches* many, six to twelve inches high, branched from the very base, suberect, very slender, leafy, paniculately branched above; branchlets suberect, almost capillary, 1-flowered at the tips. *Leaves* scattered, numerous, one-half to three-quarters of an inch long, spreading and rather deflexed, narrow linear, uniform, obtuse or acute, slightly toothed at the margin, bright green, 1-nerved. *Flowers* very copiously produced at the tips of the panicled branches, erect, half an inch long; the branches that bear them forming filiform peduncles with one or two small recurved leaves. *Ovary* obconic, very short. *Calyx-segments* half as long as the corolla, narrowly linear, spreading and recurved, green, with one or two teeth on each side. *Corolla* bell-shaped, white with five bright rose-red bands down the segments and tube externally; segments short, ovate, recurved.—*J. D. H.*

Fig. 1, Leaf; 2, flower; 3, the same laid open:—*all magnified.*

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CONTENTS OF No. 363, MARCH, 1875.

TAB. 6151.—GUSTAVIA GRACILLIMA. (Double plate.)
" 6152.—MASDEVALLIA CHIMÆRA.
" 6153.—COLCHICUM LUTEUM.
" 6154.—THEROPOGON PALLIDUM.
" 6155.—WAHLENBERGIA TUBEROSA.

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Tab. 6156.

PHYLLOCACTUS BIFORMIS.

Native of Honduras.

Nat. Ord. Cacteæ.—Tribe Epiphylleæ.

Genus Phyllocactus, *Link.*; (*Benth. & Hook. f. Gen. Pl.*, vol. i. p. 849).

Phyllocactus *biformis*; caule tereti flexuoso, ramis complanatis oblongis lanceolatis v. elongato-lanceolatis in petiolum crassum angustatis crenato-serratis obtusis v. subobtusis, costa crassa, ovario cylindraceo squamulis minutis sparsis, perianthii infundibuliformis segmentis 8–12 sub-biscriatis anguste lanceolatis acuminatis roseo-purpureis exterioribus angustioribus staminibus 6–12, stigmatis radiis 4–5, bacca parva lagæniformi.

Phyllocactus biformis, *Labouret, Monog. Cact.*, p. 418.
Disocactus biformis, *Lindl. in Bot. Reg.*, 1845, t. 9; p. 77.
Disisocactus biformis, *Salm Dyck, Cact.*, p. 57; *Lemaire, Les Cactées.*
Cereus biformis, *Lindl. in Bot. Reg.*, 1843; *Misc.*, p. 33.

A very pretty and distinct species of *Phyllocactus*, differing from all others in the few perianth segments and stamens, on which account Lindley made a new genus of it, under the name of *Disocactus*—from δις, two, ισος, equal, and κακτος, in allusion to the equal number of petals and sepals in the specimen he figured, which presented four of each. The ισος he appears to have dropped, no doubt for the sake of euphony, but it has been taken up by Salm Dyck, and the amplified name retained by such subsequent authors as have held to the genus being a good one.

For my own part, I entirely agree with Labouret in merging the genus into *Phyllocactus*, from which it differs in nothing but the fewer perianth segments, the distinction of which into an inner and outer series is not so evident in the specimen here figured. Dr. Lindley's plant further differs from that here figured in its outer segments being more slender, almost filiform, and the inner comparatively broader and closer placed.

Phyllocactus biformis is a native of Honduras, whence it was introduced by G. Ure Skinner, Esq., in 1839. He sent it

to the late Sir Charles Lemon, who had a famous collection at Carcleugh, in Cornwall; and it has been long cultivated at Kew, where it flowered in January, 1874; and I am indebted to Mr. Corderoy for another specimen which flowered with him in June; it had six narrower outer segments, four inner, and only six stamens.

Descr. *Stems* epiphytic, two to four feet long, cylindric, as thick as a swan's quill below, flexuous, branched. *Branches* leaf-like, lower broadly ovate or oblong, obtuse, two inches long, petioled, obscurely crenate; upper three to five inches long, narrow lanceolate, narrowed at both ends, subacute, obtusely serrate; all of them bright green, thick, and fleshy, with a stout costa, and no evident nerves. *Flowers* situated in the crenatures, two to two and a half inches long. *Ovary* half an inch long, cylindric, green, with a few minute scattered, triangular scales. *Perianth* bright red-purple, funnel-shaped, two inches in diameter; segments eight, ten, or twelve, lanceolate, long acuminate, the four or six outer narrower and shorter than the inner. *Stamens* six to eight, filaments of unequal length, anthers linear. *Stigma* with four slender papillose rays. *Berry* red-purple, ovoid or flagon-shaped. *Seeds* very minute.—*J. D. H.*

Fig. 1, Flower with the perianth cut vertically; 2, berry; 3, transverse section of ditto:—*all magnified.*

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Tab. 6157.

PENTSTEMON antirrhinoides.

Native of California.

Nat. Ord. Scrophularineæ.—Tribe Cheloneæ.

Genus Pentstemon, *L'her.*; (*Benth. in DC. Prodr.*, vol. x. p. 320).

Pentstemon (Breviflori) *antirrhinoides*; fruticosus, subcinereus, fere glaber, ramosissimus, ramulis tenuibus virgatis, foliis parvis vix petiolatis spathulato- v. obovato-oblongis linearibus v. oblanceolatis obtusis v. subacutis integerrimis subenerviis, pedunculis gracilibus breviusculis v. subelongatis axillaribus unifloris v. terminalibus diphyllis 1–2 floris, sepalis ovatis acutis, corolla lutea nuda, labiis amplis, superiore orbiculato concavo emarginato marginibus recurvis, inferiore 3-lobo, lobis oblongis obtusis, filamento ananthero villoso, antheris glabris loculis divergentibus.

Pentstemon antirrhinoides, *Benth. in DC. Prodr.*, vol. x. p. 594; *A. Gray in Proc. Amer. Acad.*, Oct. 1862, p. 56.

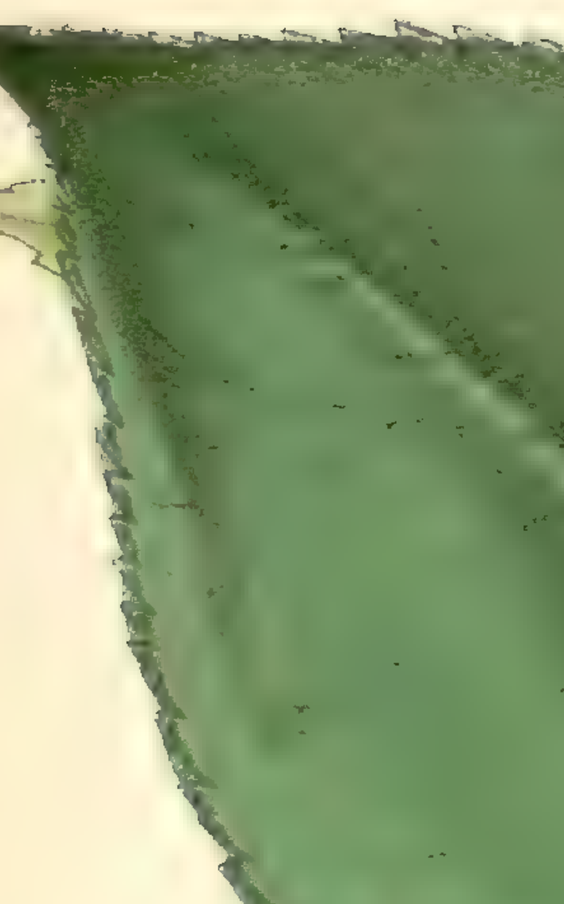
A very charming shrubby half-hardy plant, discovered in California by Dr. Coulter nearly half a century ago, and, as far as I am aware, found by no one since till Bolander gathered it in the Santa Maria Valley, San Diego. It is remarkable for the lemon-yellow colour of its flowers in a genus of which most of the species are red, violet, purplish, or blue, colours which rarely occur along with yellow in one group of closely allied vegetable forms, though instances do occur (as Gentian).

Pentstemon antirrhinoides flowered at the Royal Gardens, Kew, in September, 1874, from specimens sent by Mr. Niven, of the Hull Botanic Gardens. It is the twenty-fourth species figured in this work, out of upwards of fifty that have flowered in European gardens. The total number of species known in 1862 was sixty-four, of which an enumeration is given by Asa Gray in the Proceedings of the American Academy of Sciences, quoted above.

Descr. A small, much-branched, glabrous, subcinereous shrub; *branches* and *branchlets* slender, erect, leafy. *Leaves* three-fourths to one and a quarter inches long, obovate-spathulate, or oblong, or lanceolate, rarely linear-obovate; obtuse

or acute, quite entire, narrowed at the base into a very short petiole, nerves very indistinct. *Flowers* one inch in diameter, lemon-yellow, solitary and axillary in the ultimate branchlets, or more frequently terminal, with two leafy bracts, or three together—two with two leafy bracts, and the intermediate one bractless; peduncle one-half to an inch long, very slender. *Calyx-segments* ovate-oblong, acute, outer larger. *Corolla* glabrous, tube short, broad; limb two-lipped; upper lip orbicular, concave, arched, notched at the tip, margins recurved; lower 3-lobed, lobes oblong, rounded at the tip. *Stamens* quite glabrous; anther-cells divaricating, antherless filament bearded. *Ovary* ovoid. *Style* slender, stigmatic-lobes minute.—*J. D. H.*

Fig. 1, Corolla laid open; 2, top of filament and anther; 3, calyx and style; 4, ovary, ovule and base of style:—*all magnified.*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Tab. 6158.

PYRUS prunifolia.

Native of Siberia and North China.

Nat. Ord. Rosaceæ.—Tribe Pomeæ.

Genus Pyrus, *Linn.*; (*Benth. & Hook. f. Gen. Plant.*, vol. i. p. 626).

Pyrus (Malus) *prunifolia;* foliis gracile petiolatis late elliptico- v. obovato-orbiculatis subacutis creberrime serrulatis, junioribus subtus araneosis, umbellis simplicibus, calycis tubo lanato segmentis lanceolatis reflexis, petalis obovatis unguiculatis, stylis basi connatis, bacca calyce peristente coronata subglobosa v. ovoidea lævi v. costata.

Pyrus prunifolia, *Willd. Phytog.*, vol. i. p. 8; *Sp. Pl.*, vol. ii. p. 1018; *Ait. Hort. Kew.*, ed. ii. vol. iii. p. 208; *DC. Prodr.*, vol. ii. p. 635; *Led. Fl. Ross.*, vol ii. p. 97; *Regel. Gartenfl.*, 1862, p. 203, t. 364, f. 7–11; *Loud. Arboret.*, vol. ii. p. 892; *K. Koch. Dendrol.*, vol. i. p. 207.

Malus prunifolia, *Spach, Suites à Buffon*, vol. ii. p. 151, t. 9 et 10.

M. hybrida, *Desf. Arb.*, vol. ii. p. 141; *Lois. in Duham.*, Ed. Nov., p. 140, vol. vi. t. 42, f. 1.

Cratægusa cerasi folio, *Mill. Gard. Dict.*, p. 180, t. 269.

It is singular that no good figure should exist of so beautiful and well known a tree as this, and one introduced before 1758, which can only be accounted for by its being usually confounded with the *P. baccata* (Tab. nost. 6112), which was not introduced till 1784, and from which its connate styles and totally different fruit, crowned by the persistent calyx, at once distinguish it. I have seen no native specimens, and though stated by the earlier authors, including De Candolle, to be a native of Siberia, Ledebour does not seem to have known it, for he quotes De Candolle and Willdenow's description, giving Siberia with a query as its habitat; and, though described by Miller in 1760, is a native of Dahuria, whence it was introduced into the St. Petersburgh Gardens, it is not included in Turczaninov's Flora Baical-Dahurica. Regel, however, gives Dahuria and the Baikal as its native countries; and Karl Koch says North China, Tartary, and Southern Siberia. De Candolle, Ledebour, and Lowdon all describe the calyx as glabrous, but it is decidedly woolly,

even after the petals have fallen; these latter are white and vary much in breadth. Regel enumerates four varieties of the fruit, distinguished by form (ovoid or globose), colour (greenish and red), the top being depressed or not, and the surface obtusely ribbed or smooth. Loudon quotes Knight for the statement that some of the finest cultivated apples raised by the latter were due to fertilization by the pollen of this, and that their progeny proved more hardy and their fruit matured earlier, and was higher flavoured. Loudon further regards the *P. baccata* as doubtless a subvariety of this, differing only in not having a persistent calyx; but the whole character of its fruit is so different, and that of the connate style of this so constant, that however like in foliage and flower, I cannot think them the same.

Spach divides the species into two, one, *Malus Fontainesiana* with triangular-lanceolate calyx segments; the other, *M. prunifolia*, with oblong-lanceolate calyx segments, and which flowers a fortnight earlier.

Pyrus prunifolia has been an inhabitant of Kew for upwards of a century, and flowers in April and May, fruiting in October.

Descr. A small tree; young shoots, petioles, leaves beneath and inflorescence cottony. *Leaves* two to three inches long, ovate or obovate, or nearly orbicular, subacute, rarely acuminate, margin with small, close-set, rather unequal serratures; petiole often as long as the blade. *Umbels* sessile, 6–10-flowered; peduncles, one to one and a half inches long. *Flowers* white, one and a half inches in diameter. *Calyx-tube* obconical, lobes lanceolate, villous. *Petals* orbicular or oblong. *Styles* connate below the middle. *Berry* about an inch in diameter, globose or ovoid, base intruded, smooth or obscurely channelled, crowned by the persistent calyx, green or amber yellow and bright red in varying proportions.—*J. D. H.*

Fig. 1, Flower with petals reversed:—*magnified.*

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Tab. 6159.

MASDEVALLIA Peristeria.

Native of New Grenada.

Nat. Ord. Orchideæ.—Tribe Pleurothallideæ.

Genus Masdevallia, *Ruiz. & Pav.*;—(*Lindl. Gen. & Sp. Orchid.*, p. 192).

Masdevallia *Peristeria*; caulibus fasciculatis, foliis 4–6-pollicaribus lineari-oblongis obtusis basi angustatis sed vix petiolatis carinatis, scapis strictis vaginato-bracteatis robustis, floribus adscendentibus, sepalis basi in tubum latum subcylindricum basi gibbum alte 6-costatum connatis dein a basi lata triangulari-ovata in caudas flavas rectas sesquipollicares abrupte angustatis fulvis creberrime sanguineo maculatis intus glaberrimis, marginibus lente recurvis, petalis parvis oblique lineari-oblongis truncato-emarginatus, labello unguiculato, lamina oblonga medio subdilatata subacuta papillosa apice recurva, columna subacuta.

Masdevallia Peristeria, *Reichb. f. in Gard. Chron.*, 1873, p. 500.

A much less striking plant than *M. Chimæra*,* figured in last month's number (Tab. 6152), and yet sufficiently remarkable if judged by the standard of its congeners. Reichenbach says that it comes very near Lindley's *M. coriacea*, and his own *M. civilis* (Tab. nost. 5476), from which latter it differs in the much larger broader leaves, longer scapes, and tails to the perianth, but agrees well in the form of the petals and lip, and in the markings of the perianth. The lip is, as Reichenbach remarks, very singularly coloured, being covered with innumerable close-set amethystine papillæ on a white ground. The name is given in allusion to the likeness of the top of the column and petals to those of the Dove-plant (*Peristeria elata*, Tab. nost. 3116), where the anther case represents a dove's head, and the outstretched tips of the petals its wings, as in the Church's symbol of the Holy Spirit, whence the name of El Spirito Santo was given to the *Peristeria* by its discoverers the Spaniards.

* Prof. Reichenbach kindly informs me that the *M. Chimæra* of the *Revue Horticole* is not the true plant, but *M. Victorinia*, Reichb. f.

Masdevallia Peristeria is a native of New Grenada, whence it was imported by Messrs. Veitch, to whom I am indebted for the plant here figured, which flowered in April.

Descr. *Stems* tufted. *Leaves* erect, four to six inches long, by one to one and a quarter inches broad, linear-oblong, or oblanceolate-oblong, obtuse, deep green, keeled at the back, very coriaceous, hardly contracted into a petiole above the sheaths. *Scapes* two to three inches long, stout, strict, erect, clothed with rather ventricose bracts. *Ovary* one-third of an inch long. *Perianth* four to five inches from tip to tip of the sepals, which are connate into a tube two-thirds of an inch long, and as much in diameter, nearly cylindric, but gibbous at the base, with six stout ribs, dirty yellowish white externally; free portion of the sepals spreading, broadly triangular ovate, glabrous, suddenly contracted into stout, subulate yellow tails one and a half inches long, honey-yellow, spotted closely with red, margins slightly recurved. *Petals* white, linear-oblong, clawed, oblique at the base, tip truncate and notched. *Lip* with a linear claw and oblong subacute limb, which is dilated in the middle and suddenly contracted beyond it, upper surface studded with amethystine papillæ, tip recurved. *Column* white apiculate. —*J. D. H.*

Fig. 1, Side view of ovary, lip, petals and column; 2, front view of the same; 3, limb of lip seen in front; 4, pollen :—*all magnified.*

W Fitch del et Lith

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Tab. 6160.

FOURCROYA UNDULATA.

Native of Mexico.

Nat. Ord. Amaryllideæ.—Tribe Agaveæ.

Genus Fourcroya, *Vent.*;—(*Endl. Gen. Plant.*, p. 181).

Fourcroya *undulata*; caule brevissimo, foliis paucis sesquipedalibus diametro bipollicaribus ensiformibus patentibus rigidis longe acuminatis, apicibus spinulisque marginalibus subremotis castaneis supra basim dilatatam contractis, superne plano-concavis, subtus scabris obscure carinatis, marginibus subundulatis, utrinque opacis olivaceo-viridibus non glaucis, spinulis e basi deltoidea incurvis, scapo gracili stricto una cum panicula 10-pedali, bracteis paucis subulatis, panicula elongata stricta pubescente, ramis brevibus strictis erecto-patentibus, floribus 2-nis pendulis viridibus, bracteolis minutis, pedicellis brevibus, ovario pubescente elongato-subcylindraceo, perianthii foliolis anguste oblongis obtusis, stylo brevi subulato.

Fourcroya undulata, *Jacobi Nachträge Versuch. Systemat. Ordnung Agaveæ.* p. 55.

Though in many respects so similar to *F. Selloa*, figured in last month's number of this work, this is a remarkably different species, much smaller in all its parts, apparently never forming a stem, and with the leaves broader for their length, and more or less undulated at the margin; its spines also are more hooked. It is a native of the provinces of Chiapas and Tabasco in Mexico, where it was found by the traveller Giesbrecht, who sent it to Verschaffelt's splendid establishment in Ghent (now incorporated with the no less celebrated Brussels' one of Linden). The Kew specimen, which is here figured, flowered in the Royal Gardens in November, 1874, rather later than the other species, than which it may want a warmer climate, as that of Chiapas and Tabasco is described as hot, damp, and its hills as clothed with a tropical forest. It was received from the rich collection of W. W. Sanders, Esq., F.R.S.

Descr. *Stem* none, or very short indeed. *Leaves* forming a flat crown three feet in diameter, not very numerous, strict, spreading, one and a half feet long by two inches in diameter at the broadest part, and one-eighth of an inch

thick, ensiform, long acuminate, terminated by a pungent chestnut-brown spine, obscurely keeled at the back, which is scabrid; margin subundulate with incurved chestnut-coloured stout spines, olive-green on both surfaces, but not glaucous. *Scape* with the panicle ten feet high, green, with few subulate bracts. *Panicle* elongate, slender, narrow, erect, pubescent; branches a foot long, more erect than spreading, simple, strict. *Flowers* all drooping, usually in pairs; pedicels very short, and bracts minute. *Ovary* cylindric, pubescent, nearly an inch long, green. *Perianth* two to two and a half inches in diameter, pale green; segments narrow-oblong, obtuse, obtusely keeled down the centre. *Filaments* subulate, with broadly deltoid bases; anthers short, yellow. *Style* subulate.—*J. D. H.*

Fig. 1, Entire plant, *reduced*; 2, leaf; 3, branch of panicle and flowers:—*both of the natural size.*

W Fitch del et Lith

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Tab. 6161.

CYRTOPERA sanguinea.

Native of the Sikkim Himalaya.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Cyrtopera, (*Lindl. Gen. & Sp. Orchid.*, p. 189).

Cyrtopera *sanguinea;* tubere crasso oblongo annulato, scapo infra medium vaginato superne bracteato bracteis elongato-subulatis floralibus ovario brevioribus v. longioribus, sepalis ovato-lanceolatis acuminatis, petalis brevioribus oblongis apice obtuse 3-crenulatis brunneis v. fusco-sanguineis, labello 3-lobo pallide roseo, lobis lateralibus brevibus obtusis incurvis, intermedio orbiculato recurvo basi 3-carinato, carinis in nervos papillosos ramosos desinentibus, calcare brevi conico virescente, anthera apice producta truncata.

Cyrtopera sanguinea, *Lindl. in Journ. Linn. Soc.*, vol. iii. p. 32.

The materials at my command for describing this plant are my own specimens collected in 1848 in Sikkim, a coloured sketch of a flower made from the same by myself, a coloured drawing of the whole plant made by Judge Cathcart's artists in Sikkim, and the flowering specimen here figured. These show that the plant is very variable in colour and robustness, though but little in other respects. The colour of the flower as shown in my own sketch is a dull reddish purple, extending over the short spur, with a rose-red limb to the lip; colours which induced Dr. Lindley to name the species *sanguinea*, a name hardly justified by those hues. Cathcart's drawing, made by native artists (and these are often very faithless to nature), represents the scape as very stout, brownish purple, with broad sheaths and no subulate bracts; the bracts, pedicel, ovary, and flower are of a uniform purple-brown colour, suffused with pink, except the whole lip, which is rose-coloured. This, which passed under Dr. Lindley's eye when he described the species, is also marked by him *C. sanguinea*. Mr. Fitch's drawing speaks for the cultivated plant as flowered at Kew, which agrees well with my dried specimen in all except the absence of the sheathes at the base of the scape; differs much from both the drawings

in the singular clayey-brown colour of the flower and its green spur. I have seen no leaves, and Lindley has described the plant as aphyllous, a character which I greatly doubt. It is, of course, possible that several species are here confounded, but the uniform shape of the perianth and lip in all renders this unlikely.

C. sanguinea inhabits the tropical region of Sikkim, and is found in dense forests, at 3–5000ft. elevation; the Kew plants flowered from tubers which have been received both from the late Dr. Anderson, of the Calcutta Botanical Gardens, and Mr. Gammie, of Darjeeling.

Descr. Tuber two to three inches long, oblong-cylindric, annulate, pale. *Scape* one to one and a half feet high, stout or slender, with three sheathing bracts below the middle, which pass into subulate bracts above; the floral longer or shorter than the ovary. *Pedicels* and ovary slender, green. *Flower* one and a half to two inches in diameter, varying from pale red-purple to brown, with the lip pale and rosy. *Sepals* ovate or ovate-lanceolate, very acuminate. *Petals* shorter, more elliptic, obtuse, with three small teeth at the tip. *Lip* shorter than the petals, produced behind into a short, broad, obtuse projecting spur; limb 3-lobed; lateral lobes incurved, obtuse, with a purple spot within at the base of each; mid-lobe expanded, recurved, rounded, very obtuse; disk with three close-set keels, which give off radiating raised papillose branched nerves that almost reach the margin. *Column* produced at the top into a truncate or minutely-notched tip.—*J. D. H.*

Fig. 1, Petal; 2, ovary, column and lip; 3, lip; 4, column; 5, pollen :—*all magnified.*

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BOTANICAL MAGAZINE.

CONTENTS OF No. 364, APRIL, 1875.

TAB. 6156.—PHYLLOCACTUS BIFORMIS.
" 6157.—PENTSTEMON ANTIRRHINOIDES.
" 6158.—PYRUS PRUNIFOLIA.
" 6159.—MASDEVALLIA PERISTERIA.
" 6160.—FOURCROYA UNDULATA.
" 6161.—CYRTOPERA SANGUINEA.

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Wednesday, June 16th.
Wednesday, July 7th.
Wednesday, July 21st. (Zonal Pelargonium Show.)
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Tab. 6162.

CROCUS CHRYSANTHUS.

Native of Asia Minor.

Nat. Ord. Irideæ.—Tribe Ixieæ.

Genus Crocus, *Tourn.*; (*Baker in Gard. Chron.*, 1873, p. 291).

Crocus *chrysanthus;* cormo globoso tunicis lævibus castaneis nitidis in segmenta ovata concava apice fissa solutis basi truncatis non v. obscure fibrosis, spatha basali nulla, foliis 3–5 flores vix superantibus angustis $\frac{1}{16}$ poll. latis, spatha propria 1–2-phylla, floribus 2 aureis, perianthii tubo aureo limbo bis terve longiore non fasciato, segmentis aureis anguste elliptico-oblongis obtusis, antheris elongatis vitellinis exsertis filamenta puberula excedentibus, stigmatibus vitellinis integris apice truncatis erosis.

C. chrysanthus, *Herbert in Journ. Hort. Soc.*, vol. ii. p. 285 (*non Bot. Reg.*, 1847, t. 4, fig. 1); *Baker in Gard. Chron.*, 1873, p. 291.

C. annulatus, *var.* chrysanthus, *Herbert in Bot. Mag.*, *sub* t. 3861 *et* 3862; *et in Bot. Reg.*, 1843, *Misc.*, p. 27.

C. croceus, *K. Koch in Linnæa*, vol. xix. p. 7.

C. sulphureus, *Griseb. Fl. Rum. et Bith.*, vol. ii. p. 373 (*non Ker*).

C. mæsiacus, *J. Gay in Plant. Exsicc. Balans. Orient.*, n. 33 (*non Gawler*).

This lovely little species was first described by Herbert, in 1841, in this Magazine, as a variety of *C. annulatus*, with the caution, however, that it might prove a distinct species. Such it has since been justly regarded by Mr. Baker, from whose valuable enumeration of the *Croci*, published in the *Gardeners' Chronicle*, I have taken the synonymy quoted above. It is here figured, for the first time, from specimens sent me by my friend Mr. Elwes, F.L.S., who gathered it in Asia Minor, probably (he tells me) near Smyrna, in March, 1874. Here it was originally discovered by Friwaldsky, and collected later by Balansa, who observes that it is abundant on hills about 3000 feet high, flowering in March. It has also been found in Macedonia and Thrace by Grisebach.

Besides its colour, *C. chrysanthus* has its sweet odour to recommend it; and it appears to be a very free bloomer. The abrupt bases of the coats of the corm, which are smooth

and shining, and break off into ovate acute concave fragments, are very peculiar.

Descr. *Corm* one-half to three-quarters of an inch in diameter, globose, with a broad fibrous base; coats smooth, shining, not at all fibrous, truncate at the base, breaking up into ovate concave segments that are split at the top into acute bristly teeth. *Buds* solitary, 1–2-flowered. *Basal spathe* none. *Leaves* three to five, about as tall as the flower, very narrow, about one-sixteenth of an inch broad, margins smooth recurved, costa white. *Sheaths* pale; floral one or two. *Flowers* one and three-quarters to two inches in diameter, bright golden yellow, odorous; tube two to three times as long as the limb, yellow, not striped; segments narrowly elliptic-oblong, obtuse. *Anthers* exserted, slender, longer than the somewhat pubescent filaments, bright orange-yellow. *Stigmas* of the same colour, quite entire, truncate, obscurely erose.—*J. D. H.*

Fig. 1, Portion of coat of corm; 2, stigmas:—*both magnified.*

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Tab. 6163.

ODONTOGLOSSUM Warscewiczii.

Native of Costa Rica.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Odontoglossum, *H. B. et K.*; (*Lindl. Fol. Orchid.*, *Odontoglossum*).

Odontoglossum (Phalænopsoidea) *Warscewiczii;* pseudobulbis parvis anguste oblongis compressis, foliis pedalibus anguste elliptico-lanceolatis acuminatis, scapo gracili, 6–8-flore, floribus amplis albis, perianthii plani segmentis basi roseis, sepalis ovatis acutis, petalis paulo majoribus elliptico-oblongis obtusis v. subacutis, labello amplo late panduriformi apice bilobo basi in unguem brevissimum constricto, ungue simplici concavo marginibus elevatis puberulis disco basi carinis 3 brevibus obtusis puberulis, columna brevi exalata.

O. Warscewiczii, *Reichb. f. in Mohl et Schlecht., Bot. Zeit.*, 1852, p. 692; *Xen. Orchid.*, vol. i. t. 208, t. 81; *in Gardeners' Chronicle*, 1875, p. 270; *Lindl. Fol. Orchid. Odontogl.*, n. 21*.

No one can compare this lovely plant with its gorgeous congeners, *O. vexillarium* (Tab. nost. 6037) and *O. Phalænopsis*, without recognising with Professor Reichenbach their close affinity in foliage and habit, whilst in floral structure they differ materially, especially in the lip, which in *O. vexillarium* has the claw produced backwards into an acute horn on either side, whereas in this it is quite simple. The ridges of the claw and disk of the lip further differ remarkably, as a comparison of the plates will show. *O. Warscewiczii* was discovered by Joseph von Warscewicz, the Polish nobleman who has added so many fine plants to our stoves, in Costa Rica; it was first flowered by Messrs. Veitch, in February of this year, and by them sent for figuring in this Magazine. It is a very free bloomer, and may, as Dr. Reichenbach suggests, rival *O. vexillarium* itself in the estimation of florists. Its discoverer describes it as growing at a considerable elevation, and being very scarce.

Descr. *Pseudobulbs* tufted, small, one and a half to two inches long, oblong-ovate, compressed, margins acute. *Leaves* distichous, nearly a foot long, elliptic-lanceolate, acute, bright-green above, paler beneath and keeled. *Scape* about as long

as the leaves, slender, inclined or drooping, 6–8-flowered. *Pedicels* and ovary together one and a half inches long, slender, pale; bracts small, acute, appressed. *Perianth* two to two and a half inches in diameter, flat, white, with a rose-coloured blotch at the base of each segment, and two at the base of the lip. *Sepals* broadly ovate, acute. *Petals* about as large, elliptical, rounded or apiculate at the tip. *Lip* very broadly fiddle-shaped, with rather sharply angled sides, the broad apex 2-lobed, with a mucro in the notch; lobes somewhat reflected, obtusely quadrate; claw very short, small, concave, with a raised pubescent golden-yellow annulus or border, from which three contiguous obtuse short yellow keels project upon the disk. *Column* very short.—*J. D. H.*

Fig. 1, Front, and 2, side view of lip and column:—*both magnified.*

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Tab. 6164.

HEMICHÆNA fruticosa.

Native of Guatemala and Costa Rica.

Nat. Ord. Scrophularineæ.—Tribe Gratioleæ.

Genus Hemichæna, *Benth.*; (*in Plant. Hartweg.*, p. 78).

Hemichæna *fruticosa*; ramulis herbaceis, subteretibus, foliis 3–5-pollicaribus oblongo-lanceolatis sub-duplicato-dentatis acuminatis basi amplexicauli-connatis pubescentibus, cymis axillaribus 3–5-floris foliis brevioribus, bracteis oblongis acutis, calycis lobis subæqualibus tubo brevioribus lanceolato-subulatis, corolla aurea facie Mimuli, lobis obovato-rotundatis tubo intus puberulo brevioribus.

H. fruticosa, *Benth. Plant. Hartw.*, p. 78; *Walp. Rep.*, vol. iii. p. 452.
Leucocarpus fruticosus, *Benth.*, l. c. 350, *et in DC. Prod.*, vol. x. p. 336.

A very handsome rock plant, but not likely to be hardy; found originally by Hartweg in Guatemala, and described by Bentham in 1839 as a new genus, which however he immediately after, but on insufficient grounds, merged into *Leucocarpus*.

Nothing further was known of *Hemichæna* till it was sent from Costa Rica by Endress, plants from whom flowered at Messrs. Veitchs' establishment, July, 1873. Osbert Salvin, F.R.S., an able ornithologist and assiduous collector of plants, next found it growing on the Volcan de Alitan in Guatemala, at an elevation of 10,000 feet above the sea. Mr. Salvin sent seeds of it to England, which germinated and flowered at Kew, but the specimen here figured was from Mr. Veitch. *Hemichæna* differs from *Leucocarpus* (one species of which, *L. alatus*, is figured in this work, Tab. 3067, as *Mimulus perfoliatus*), in the capsular fruits and anthers with parallel cells, as well as in the more deeply cleft calyx; in habit and foliage, the genera are remarkably alike. From *Mimulus*, with which *Leucocarpus* was formerly confounded, both it and *Hemichæna* differ in their inflorescence.

Descr. A glandular pubescent shrub, three to five feet high; branches terete, herbaceous, green. *Leaves* opposite, four to eight inches long, two to two and a half broad, oblong-

lanceolate, acuminate, irregularly or doubly toothed, contracted somewhat above the amplexicaul base, which unites with that of the opposite leaf, dark green, pubescent on both surfaces, nerves very oblique. *Cymes* usually 3-flowered, much shorter than the leaves; peduncle three-quarters to one inch long; pedicels very short; bracts oblong, herbaceous, caducous. *Calyx* half-inch long, tubular, somewhat oblique, 5-angled; mouth 5-lobed; lobes straight, subulate-lanceolate, green. *Corolla* golden-yellow; tube twice as long as the calyx, broad, smooth, terete, gradually expanded into the obscurely 2-lipped spreading limb, which is one to one and a half inches broad; lobes nearly equal, rounded; tube puberulous within, speckled with red at the throat. *Stamens* inserted towards the base of the tube, filaments nearly straight, two rather longer than the rest; anthers shortly oblong, cells parallel. *Ovary* ovoid; style slender, stigmatic lobes flat elliptic. *Capsule* rather longer than the calyx, oblong; valves flat, grooved down the middle of the back, glabrous; placentas thick. *Seeds* very minute.—*J. D. H.*

Fig. 1, Corolla laid open; 2, calyx and style; 3, ovary; 4, tranverse section of ditto:—*all magnified.*

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Tab. 6165.

DICHORISANDRA Saundersii.

Native of Brazil.

Nat. Ord. Commelyneæ.

Genus Dichorisandra, *Mikan;* (*Mart. et Seubert, Flor. Bras.*, fasc. iv. p. 235).

Dichorisandra *Saundersii;* caule gracili terete piloso, foliis subdistichis elongato-lanceolatis longe acuminatis ciliatis basi in vaginam brevem ciliatam vix tumidam abrupte attenuatis, inflorescentia terminali, floribus in racemum densum subcapitatum confertis brevissime pedicellatis, $\frac{3}{4}$ poll. diametro, pedicellis sepalisque oblongis obtusis glabris, petalis obovatis apice rotundatis sepalis ter majoribus violaceis, staminibus 6 subæqualibus, filamentis crassis antheris linearibus brevioribus, ovario glabro.

I have searched in vain amongst the published species of *Dichorisandra* for this pretty species. About thirty species of the genus are known, most of them, like *D. Saundersii*, are Brazilian, and amongst them *D. gracilis*, Nees et Mart. approaches nearest to this in character, but differs in its small flowers and pubescent inflorescence, as well as in having three stamens with long anthers and short filaments, and the other three with short anthers and long filaments. The other species of the genus figured in this work are *D. oxypetala*, Hook. (Tab. 2721), *D. leucophthalmos*, Hook. (Tab. 4733) which has radical inflorescence, and *D. picta*, Lodd. (Tab. 4760), all very different from this.

Dichorisandra Saundersii was introduced from Brazil by W. Wilson Saunders, Esq., F.R.S., and given by him to Kew, where it flowered in July, 1873; it forms a pretty stove plant about three feet high.

Descr. *Stem* two to three feet high, slender, very sparingly branched; branches slender, cylindrical, terete, pilose, as are the sheaths, with slender ascending hairs. *Leaves* five to six inches long, numerous, sub-bifarious, lanceolate, long-acuminate, recurved for the most part, 5-nerved, dark green, suddenly contracted at the base into the sheath, margins recurved in the lower part, pale beneath; sheaths a quarter to one-third of an inch long, hardly tumid, green, mouth rounded.

May 1st, 1875.

Inflorescence terminal, nearly glabrous; peduncle very short, stout. *Flowers* three-quarters of an inch diameter, crowded in a dense ovoid almost capitate panicle two inches long; pedicels very short, glabrous. *Sepals* oblong, obtuse, concave, glabrous, white, tipped with violet. *Petals* more than twice as large as the sepals, obovate, concave, rounded at the tip, violet except at the base, which is white. *Stamens* 6, subequal; filaments very short, stout, obovoid; anther longer than the filament, rather slender. *Ovary* subglobose; style straight, or nearly so, stigma obtuse.—*J. D. H.*

Fig. 1, Flower; 2, petal and stamen; 3, apex of pedicel and stamens; 4, pistil:—*all magnified.*

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2

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Tab. 6166.

GALANTHUS Elwesii.

Native of Asia Minor.

Nat. Ord. Amaryllideæ.—Tribe Amaryllæ.

Genus Galanthus, *Linn.*; (*Endl. Gen. Plant.*, p. 174).

Galanthus *Elwesii*; vaginæ ore lateraliter fisso, foliis binis 6–8-pollicaribus $\frac{3}{4}$ poll. latis planis basi carinatis semitortis valde glaucis, spatha $1\frac{1}{2}$ pollicari, floribus amplis 1–$1\frac{1}{2}$ poll. diam., segmentis exterioribus late obovatis concavis albis, interioribus cuneato-oblongis medio constrictis apice 2-lobis, lobis obtusis divergentibus intus plicato-carinatis viridibus fascia media alba.

This fine Snowdrop is very distinct from any previously described, though whether all these, namely, *G. nivalis*, L., of N. Europe, *G. plicatus*, M.B. (Tab. nost. 2162, a poor plate of a small specimen), of the Caucasian regions, and *G. Imperati*, Bert., of Italy (*G. plicatus*, Tenore not of M. Bieb.), should not, together with this, be regarded as geographical forms of one may be a matter of opinion. *G. Elwesii* is nearest to *plicatus*, but differs in its basal sheath being more or less deeply notched or even divided on one side; in the leaves not being folded within the sheath, but twisted; in the larger flower and fruit; and in the form and colour of the inner perianth-segments, which in *G. plicatus* are not as in this constricted in the middle, and are merely notched, not 2-lobed at the tip, and are white with two confluent green spots confined to the top. Lastly, the anther-cells are shorter and broader in *G. Elwesii* than in the Kew specimen of *G. plicatus*.

Galanthus Elwesii is a native of the summits of Yamanlar-dagh mountains, north of the Gulf of Smyrna, where it was discovered by M. Balansa in 1854, and whence dried specimens were distributed under the name of *G. plicatus*, being so named by M. J. Gay of Paris. I am indebted to Mr. Elwes, of Miserdine House, Cirencester, a gentleman who to an ardent love of scientific horticulture unites the powers of a traveller, collector, and observing naturalist, for pointing

out its distinctive character from *G. plicatus*, and which Mr. Baker has confirmed. Mr. Elwes collected the specimens here figured on the mountains near Smyrna in 1874 and cultivated them in his garden at Miserdine, which bids fair soon to contain perhaps the largest and best private collection of well-named bulbous plants in the kingdom; it flowered in February and is quite hardy.

Descr. *Bulb* globose, three-quarters of an inch in diameter; tunics thick, fleshy. *Sheath* membranous, mouth oblique and cleft on one side. *Leaves* two, six or eight inches long by three-quarters of an inch broad, obtuse, flat except towards the base, where they are keeled, "not-plaited, but always twisted" (*Elwes*), very glaucous, sheathing the base of the flowering scape. *Scape* six inches high, oblong on a transverse section. *Spathe* one to two inches long, convolute, border membranous. *Ovary* obovoid, one-half inch long. *Perianth* one and a half inches in diameter, or more when spread out, outer segments white, broadly obovate obtuse concave; inner oblong-cuneate, constricted somewhat above the middle, 2-lobed at the tip, the lobes obliquely truncate and spreading; green, with a white wrinkled border and a broad white horizontal band above the middle; outer surface smooth, inner deeply ribbed. *Filaments* very short; anther-cells short, broad, with long prolongations and subulate recurved tips.—*J. D. H.*

Fig. 1, Tip of ovary, style, and stamen; 2, back, and 3, front views of inner perianth segment:—*all magnified.*

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CONTENTS OF No. 365, MAY, 1875.

TAB. 6162.—CROCUS CHRYSANTHUS.
„ 6163.—ODONTOGLOSSUM WARSCEWICZII.
„ 6164.—HEMICHÆNA FRUTICOSA.
„ 6165.—DICHORISANDRA SAUNDERSII.
„ 6166.—GALANTHUS ELWESII.

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Tab. 6167.

KNIPHOFIA Macowani.

Native of South Africa.

Nat. Ord. Liliaceæ.—Tribe Aloineæ.

Genus Kniphofia, *Mœnch.*; (*Baker in Journ. Linn. Soc.*, vol. xi. p. 360).

Kniphofia *Macowani;* foliis 1–1½-pedalibus rigidissimis anguste elongato-subulatis carinatis basi ⅓ poll. latis sulcatis, marginibus crenato-denticulatis, scapo foliis æquilongo, racemo 3–4-pollicari, bracteis ovato-lanceolatis acuminatis, floribus deflexis brevissime pedicellatis, perianthio pollicari subcylindraceo basi hemispherico supra ovarium non constricto e flavo aurantiaco-coccineo, segmentis rotundatis patentibus, genitalibus inclusis.

K. Macowani, *Baker in Trim. Jour. Bot.*, 1874, p. 3.

We have several dried specimens of this pretty little Kniphofia, collected by its discoverer, whose name it bears, in grassy places of the Boschberg mountains in Somerset district, where it inhabits elevations of 4000 to 5000 feet. It was described from these by Mr. Baker, and flowered shortly afterwards in the Royal Gardens from roots sent by Professor Macowan. It is remarkably distinct from any of the fourteen species described by Mr. Baker in the eleventh volume of the "Linnæan Journal," and which are alluded to under *K. Rooperi* (Tab. nost. 6116), and forms one of six additional species subsequently described by Mr. Baker in Dr. Trimen's "Journal of Botany," quoted above.

It is best treated as a greenhouse plant, though probably as hardy as the other species of the genus.

Descr. *Root* of stout fibres. *Stem* as thick as the thumb at the base, clothed with the rigid fibrous nerves of the old leaves. *Leaves* one to one and a half feet long, suberect, one-third of an inch broad at the base, narrow subulate, strongly keeled, triangular at the back, deeply grooved, margins strongly toothed, tips flattish. *Scape* as long as the leaves or longer, slender, cylindric, with one subulate bract or none. *Raceme* three to five inches long, cylindric-ovoid. *Bracts* one-quarter of an inch long, ovate-lanceolate, acumi-

nate, white, membranous. *Flowers* very shortly pedicelled, deflexed, yellowish passing into bright orange-red; tube nearly cylindric, rounded at the base, not contracted above the ovary, slightly narrowed from the lower third to the throat; segments one-twelfth of an inch long, rounded, spreading. *Stamens* included.—*J. D. H.*

Fig 1, Flower, *magnified*.

W Fitch del et Lith

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Tab. 6168.

CROCUS Crewei.

Native of the Greek Archipelago.

Nat. Ord. Irideæ.—Tribe Ixieæ.

Genus Crocus, *Tourn.*; (*Klatt in Linnæa*, vol. xxxiv. p. 674).

Crocus *Crewei*; cormo ovoideo-globoso, tunicis basi truncatis lævigatis, exterioribus brevioribus in vaginam fissam basim foliorum cirgentem productis, rete e fibris tenuissimis dense intertextis, foliis binis vernalibus flores vix superantibus $\frac{1}{12}$ poll. latis canaliculatis, costa alba, spatha 2-phylla 1-flore, interiore anguste lineari, exteriore tubum perianthii vaginante, perianthii tubo 2-pollicari albo lineis 6 purpureis striato, limbo albo pollicari, segmentis oblongo-lanceolatis acutis exterioribus lineis 3 purpureis notato, interioribus estriatis, fauce luteo glabro, antheris purpureis filamentis luteis æquilongis stigmatibus linearibus integerrimis.

Allied to *C. biflorus* (Tab. nost. 845), but very distinct in many characters, and with the corm of *C. lævigatus*, Bory, whilst differing from these and all other known species in the purple anthers. It is remarkable that so distinct an undescribed plant should inhabit Syra, the best known of all the Greek islands, and one which has long been the coaling station for the Mediterranean steamers, whence the traffic diverges in one direction to Smyrna, and in the other to Constantinople and the Black Sea. This fact shows how much remains still to be done towards the investigation of the bulbous plants of the Levant, and especially in respect of such genera as Crocus, whose flowers are very fugacious.

Crocus Crewei is a discovery of the gentleman, H. G. Elwes, Esq., F.L.S., to whom horticulture is indebted for the introduction of many new Oriental bulbs, including the *Galanthus* figured in the last number of this Magazine (Tab. 6166). Mr. Elwes collected seeds and corms of it on hills about 1000 feet high, growing with *C. Boryi*, and flowering very early, and transmitted corms to the Rev. H. Harper Crewe, who flowered them at the Rectory, Drayton Beauchamp, in March of the present year. At Mr. Elwes's

desire I have named it after our common friend, Mr. Crewe, whose collection of Croci is the richest in Europe.

Descr. *Corm* the size of a hazel-nut, ovoid-globose; tunics very smooth, truncate and split at the base, the outer successively shorter, so that they seem to imbricate downwards; the outermost constricted at the top into a short toothed sheath; texture very close, with no appearance of reticulations. *Leaves* two only, two to three inches long, slender, equalling or slightly exceeding the flower; midrib broad and prominent; upper surface with a distinct white line. *Proper spathes* two, outer enfolding the leaves; inner narrow, linear. *Flower* solitary. *Perianth-tube* one to two inches long, very slender, white, with six purple stripes; limb one and a half inches broad, white; segments oblong-lanceolate, acute, the outer with three fimbriate purple stripes on the back, the inner not streaked; throat bright-yellow, glabrous. *Filaments* short, yellow, equalling the slender purple anthers, which are a quarter of an inch long, and reach half-way up the limb. *Stigmas* slender, orange-yellow, undivided.—*J. D. H.*

Fig. 1, Section of tunics of corm; 2, ditto of leaf seen from the back; 3, styles:—*all magnified.*

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Tab. 6169.

DRACÆNA Smithii.

Native of Tropical Africa.

Nat. Ord. Liliacæ.—Suborder Asparageæ.

Genus Dracæna, *Vand.*; (*Baker in Journ. Linn. Soc.*, vol. xiv. p. 52).

Dracæna *Smithii*; caule elato simplici gracili, foliis confertis patenti-recurvis 3–4 pedalibus supra medium $2\frac{1}{2}$–$3\frac{1}{2}$ poll. latis inferne angustatis apice acuminatis striato-nervosis læte viridibus tenuiter coriaceis, costa superne evanida subtus valida prominula, marginibus integerrimis tenuiter cartilagineis, inflorescentia paniculatim ramosa suberecta, ramis patentibus, floribus in axillis paniculæ et ramulorum apicibus fasciculatis flavis, bracteis 2–5-pollicaribus lanceolatis, bracteolis minutis deltoideo-ovatis acutis, pedicellis brevissimis, perianthio $\frac{1}{2}$-pollicari. tubo cylindraceo, segmentis tubum æquantibus lineari-oblongis apicibus incurvis, filamentis crassis perianthii segmentis æquantibus, antheris deltoideis loculis basi divergentibus, stylo gracili longe exserto, stigmate peltato 3-lobo.

D. Smithii, *Baker MSS.*

The precise origin of the handsome *Dracæna* here figured is unknown; it has been in cultivation for many years, both at Kew and Sion House, and it appears to be so closely allied to *D. fragrans* that I cannot doubt its being an African species, and one probably introduced by Whitfield from the West Coast, a quarter of a century ago. As it is, all trace of its history is lost in both establishments. A reference to the plate of *D. fragrans*, published in this Magazine (Tab. 1081), will show how near to one another these plants are, this differing chiefly in its narrower, more straight, and much less undulated leaves, in the yellower flower, with a shorter perianth-tube, and in the divaricating base of the anther-cells.

Mr. Baker, who I follow in keeping it distinct from *D. fragrans*, has proposed that the name of the late and present able Curators of the Royal Gardens (both named John Smith, and unrelated) should be attached to this plant, which is the more applicable, inasmuch as the present Curator had charge of the gardens of his Grace the Duke of Northum-

berland at Sion House, where as well as at Kew, *D. Smithii* has been long in cultivation; it flowers in winter or early spring in both establishments.

Descr. *Stem* fifteen feet high, slender, hitherto quite unbranched, cylindric, almost smooth. *Leaves* three to four feet long, forming a spreading rosette on the very crown of the stem, slightly recurved, not waved, narrowly ensiform, broadest beyond the middle, acuminate, narrowed towards the base before dilating at the insertion, broadest part two and a half to three and a half inches in diameter, narrowest about one inch, bright green, striated; midrib indistinct above, very strong and prominent beneath; lateral nerves reduced to innumerable striations; margin thinly cartilaginous. *Inflorescence* of several subsessile suberect branched panicles two feet long, glabrous; rachis and branches stout, terete, green; bracts two to five inches long; bracteoles small, crowded, ovate, acute. *Flowers* in crowded fascicles in the axils of the panicle, and terminating short branchlets, subsessile. *Perianth* pale yellow, half-inch long; tube cylindric, base conical; segments as long as the tube, linear-oblong, with acute incurved tips. *Filaments* as long as the perianth-segments, rather stout; anthers broadly ovate, cells diverging at the base. *Style* slender, equalling the stamens; stigma peltate, 3-lobed.—*J. D. H.*

Fig. 1, Reduced figure of whole plant; 2, portion of panicle, and 3 of leaf:—*both of the natural size;* 4, flower:—*magnified.*

6170

3

4

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Tab. 6170.

BALBISIA verticillata.

Native of Chili and Peru.

Nat. Ord. Geraniaceæ.—Tribe Wendtieæ.

Genus Balbisia, *Cav.*; (*Benth. & Hook. f. Gen. Plant.*, vol. i. p. 276).

Balbisia *verticillata*; frutex glaucus, ramis gracilibus strictis, foliis oppositis alternisque tripartitis, segmentis lineari-oblongis obtusis acutisve integerrimis sericeo-pilosis marginibus revolutis, floribus terminalibus solitariis pedunculatis amplis aureis.

B. verticillata, *Cav. in Ann. Cienc. Nat.*, vol. vii. p. 62, t. 46; *Don in Ed. New Phil. Journ.*, 1833, p. 277; *Klotzsch in Linnæa*, vol. x. p. 431.

B. pedunculatis, *Don in Ed. New Phil. Journ.*, 1833, p. 277.

Ledocarpon chilense, *Desf. in Mem. Mus.*, vol. iv. p. 250; *DC. Prod.*, vol. i. p. 702; *C. Gay, Flor. Hist. Fis. et Polit. Chile Bot.*, vol. i. p. 394.

L. argentum, *Presl. Symb.*, vol. i. 66, t. 44; *C. Gay*, l.c. p. 394.

L. pedunculare, *Lindl. Bot. Reg.*, t. 139; *C. Gay*, l.c. p. 393.

L. Meyenianum, *Walp. Rep.*, vol. v. p. 380.

L. cistiflorum, *Meyen Reise*, vol. i. p. 470; *Nov. Act. Nat. Cur.*, vol. xix. Suppl. i. p. 316.

Cruckshanksia cistiflora, *Hook. Bot. Misc.*, vol. ii. p. 211, t. 90; *Klotzsch*, l.c. p. 432.

This beautiful half-hardy shrub was introduced into the Horticultural Gardens in 1825; but like so many other plants requiring occasional protection to insure its continuance in the open air, it soon was lost from out of doors, and coming from a dry cool climate, it damped off when transferred to a pit; such plants indeed can be secured only through a constant repetition by cuttings, and by more care than is usually bestowed on plants with unfamiliar names. When properly grown it is an exceedingly handsome thing, flowering in August and September, and resembles a gigantic Hypericum more than an Œnothera, with which latter it has more usually been compared. The Chilian name is Flor de San José, and it has a wide range, both in Chili and Peru, growing on dry hills and ascending to 10,000 feet.

Balbisia verticillata has been introduced for the second

time by Messrs. Veitch, who sent the specimen here figured in September last.

Descr. An erect *shrub*, three to six feet high; branches alternate, and as well as the twigs and leaves, clothed with dense more or less silky hairs. *Leaves* alternate and opposite, sessile, one-quarter to one inch long, divided to the base into narrowly linear-oblong obtuse or acute slightly curved segments, margins quite entire and recurved; midrib very strong. *Flowers* two to three inches in diameter, on slender terminal peduncles one to three inches long. *Bracts* of about ten linear leaf-like segments, placed close under the calyx. *Sepals* five, half an inch long, ovate-lanceolate, acuminate. *Petals* five, broadly ovate-cuneate, tip rounded or retuse, golden yellow, contorted in æstivation. *Stamens* ten, much shorter than the petals; filaments slender, yellow; anthers about as long, linear, orange-yellow. *Ovary* ovoid, silky, 5-celled; stigmas five, sessile, linear, red-purple, spreading. *Ovules* many, 2-seriate in each cell. *Capsule* loculicidally 5-valved; valves cohering by the septa with the axis. *Seeds* numerous, angled; albumen thin, fleshy; cotyledons folded. —*J. D. H.*

Fig. 1, Branch and leaves; 2, flower with petals removed; 3, ovary:—*all magnified.*

3

1

Tab. 6171.

MASDEVALLIA Estradæ.

Native of New Grenada.

Nat. Ord. Orchideæ.—Tribe Pleurothallideæ.

Genus Masdevallia, *Ruiz & Pav.*; (*Lindl. Gen. & Sp. Orchid.*, p. 192).

Masdevallia *Estradæ;* caulibus fasciculatis, foliis 3-pollicaribus elliptico-oblongis v. spathulatis obtusis v. apice 2-dentatis in petiolum angustatis coriaceis vix carinatis, scapis gracilibus lente curvis foliis paulo longioribus supra medium et basin versus bracteatis, floribus adscendentibus, ovario brevi angulato et sulcato, sepalis in tubum brevem latum campanulatum connatis in caudas filiformes flavas florem excedentibus abrupte angustatis, supremo scaphiformi oblongo concavo basi luteo supra medium purpureo, lateralibus oblongis planiusculis marginibus recurvis, petalis parvis dimidiato-oblongis apice obtuso dentato basi antice in auriculam productis, labello oblongo truncato callo purpureo recurvo apiculato, columna exalata apice 3-loba.

M. Estradæ, *Reich. f. in Gard. Chron.*, 1874, p. 435.

Though neither so rich in colour nor grotesque in form as the species of *Masdevallia* lately figured in this work, the present species promises to be a favourite with cultivators from its dense habit of growth, abundant flowering, and the delicate tints of the flowers. It is a native of New Grenada, and was, according to Dr. Reichenbach's statement in the *Gardeners' Chronicle*, first observed in the garden of a New Grenada lady, Doña Estrada, a skilful grower of Orchids. It was subsequently found by Mr. Patin, collector for Mr. Williams, of the Victoria and Paradise Nurseries, through whom it was thus first introduced into this country.

For the specimen here figured I am indebted to H. E. Cauty, Esq., of Liverpool, who sent in April last a plant with fifty-five leaves and fourteen flowers.

Descr. *Stems* densely tufted, forming a cushion-like mass of leaves. *Leaves* with the petioles three inches long, elliptic or cuneate-spathulate, obtuse or bifid at the tip, coriaceous, gradually narrowed into the petiole, obscurely keeled, deep green above, pale beneath. *Scapes* rather longer than the leaves, erect, slender, slightly curved, with one sheathing

bract below the flower, and another towards the base. *Flowers* inclined, three inches in diameter from the tip of the upper to those of the lateral sepals. *Sepals* combined at the base into a short campanulate tube, then spreading, subequal, all of them abruptly contracted into slender spreading almost filiform yellow tails longer than themselves; upper sepal boat-shaped, very concave or galeate, lower half yellow, upper half violet-purple; lateral sepals more flattened, with strongly recurved margins, violet-purple towards the lower half, the upper half white or straw-coloured. *Petals* very small, white, membranous, dimidiate-oblong, tip truncate and toothed, base dilated in front into an obtuse auricle. *Lip* linear-oblong, shortly clawed, nearly white, tip provided with a terminal recurved purple callus; surface nearly smooth. *Ovary* angled and grooved.—*J. D. H.*

Fig. 1, Flower with sepals removed; 2, column and claw of lip; 3, lip:—*all magnified.*

Tab. 6172.

VIBURNUM Sandankwa.

Native of Japan.

Nat. Ord. Caprifoliaceæ.—Tribe Sambuceæ.

Genus Viburnum, *Linn.*; (*Benth. & Hook. f. Gen. Pl.*, vol. ii. p. 3).

Viburnum *Sandankwa*; ramis teretibus verruculosis, foliis petiolatis ellipticis elliptico-ovatisve obtusis v. subacutis basi rotundatis v. acutis grosse crenato-serratis v. fere integerrimis coriaceis glaberrimis, petiolo crasso $\frac{1}{4}$–$\frac{1}{2}$-pollicari aspero, nervis paucis validis arcuatis, corymbis axillaribus v. terminalibus parvis erectis paucifloris breviter pedunculatis glabris v. puberulis basi ebracteatis, bracteolis parvis herbaceis ovato-lanceolatis, ovario subgloboso, calycis dentibus parvis ovato-rotundatis, corollæ albæ tubo $\frac{1}{2}$-pollicari, limbi lobis suberectis concavis rotundatis.

V. Sandankwa, *Hassk. Retzia, pug.* i. p. 38; *Miq. Prol. Fl. Jap.*, p. 156; *Walp. Ann.*, vol. v. p. 96.

A hardy evergreen shrub, cultivated in Japan, whence we have cultivated specimens gathered by Maximovicz at Nagaski, and native ones from the Loochoo Islands, gathered by C. Wright during the American North Pacific Exploring Expedition in 1853–6, and subsequently in the same island by Dr. Weyrich, communicated from the St. Petersburg Botanic Gardens. Hasskarl, who describes it from cultivated specimens, says that it very rarely flowers; Miquel, in his Prolusio, gives a description of it, but no habitat; he however indicates its affinity with the Himalayan *V. cylindricum*, Don, and *V. erubescens*, Wall., to the former of which it is most nearly allied in the concave corolla limb, but differs in the short peduncle of the corymb, which is not glandular, and in the toothed leaves.

V. Sandankwa has been long cultivated at the Scilly Islands, where the late proprietor, Aug. Smith, Esq., M.P., formed at Tresco Abbey a magnificent collection of half-hardy herbs, shrubs, and trees, principally procured (and this amongst them) from the Royal Gardens, Kew, and from Messrs. Veitch of the then Exeter Nurseries. This collection is now sedulously cared for by his heir, J. Dorrien Smith, Esq.,

who sent to Kew to be named flowering specimens of *V. Sandankwa* in March last; it is not a little remarkable that a shrub, native of the Loochoo Islands, which are but little north of the tropics and within the zone of the typhoons of the Chinese Seas, should flourish in 52° N. and in the cool Atlantic Ocean. At Kew it has proved hardy, planted against a wall in a very sheltered place, but has never flowered.

Descr. A *shrub* four to six feet high, or small tree, branches terete, bark dark brown, warted. *Leaves* two to four and a half inches long, elliptic or oblong-ovate, or sub-obovate, obtuse or subacute; base rounded or cuneate; margin loosely crenate-toothed, especially above the middle, sometimes quite entire; tips of the teeth glandular; nerves three or four on each side the midrib, strong, arched; upper surface bright green, under paler with a few obscure glands or none; petiole quarter to half an inch long, stout, rough. *Cymes* terminal and in the upper axils, short, few-flowered, shortly peduncled, suberect, pubescent, nearly globose in the cultivated specimens; bracts at the base none, those at the forks small, ovate-lanceolate, herbaceous. *Flowers* very shortly pedicelled. *Calyx-teeth* small, rounded, ovate. *Corolla* white, with a faint rose tinge, tube one-third to half an inch long, cylindric; lobes erecto-patent, rounded, concave. *Anthers* small, exserted. *Stigma* on a short stout style, 3-lobed.—*J. D. H.*

Fig. 1, Flower; 2, calyx, ovary, style and stigma:—*magnified*.

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CONTENTS OF No. 366, JUNE, 1875.

TAB. 6167.—KNIPHOFIA MACOWANI.
„ 6168.—CROCUS CREWEI.
„ 6169.—DRACÆNA SMITHII.
„ 6170.—BALBISIA VERTICILLATA.
„ 6171.—MASDEVALLIA ESTRADÆ.
„ 6172.—VIBURNUM SANDANKWA.

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Tab. 6173.

VANDA limbata.

Native of Java.

Nat. Ord. Orchideæ.—Tribe Vandeæ.

Genus Vanda, *Lindl.*; (*Lindl. Fol. Orchid. Vanda*).

Vanda *limbata;* caule suberecto elato robusto, foliis distichis 6–10-pollicaribus patenti-recurvis linearibus apice obtuse 2-lobis carinatis crasse et dure coriaceis, pedunculo elongato, racemo multifloro, floribus 2-poll. diametr., petalis sepalisque consimilibus spathulatis intus cinnamomeis disco tesselato aureo-limbatis extus albis v. pallide lilacinis, labello dorso in calcar breve conicum obtusum producto, lobis lateralibus parvis rotundatis intermedio sepalis æquilongo quadrato infra apicem obscure apiculatam paulo constricto lateribus deflexis pallide lilacino disco obscure 5–7-sulcato, ungue brevi callo instrueto, columna brevi cucullata.

V. limbata, *Blume, Rumphia*, vol. iv. p. 49 sub *V. furva; Lindl. Fol. Orchid. Vanda*, p. 6; *Reichb. f. in Walp. Ann.*, vol. vi. p. 867.

A near ally of *V. insignis*, as an inspection of our Plate 5759 will show, but abundantly distinct in the leaves, form of the lip and coloration of the margins of the sepals and petals. It is almost identical with the Javanese *V. furva* of Blume, which is poorly figured in that author's fine work, the "Rumphia," and which he distinguishes from *V. limbata* by a very slight character in the lip which I do not perceive; his figure of *V. furva* represents a smaller plant, with a narrower lip, and no golden edges to the sepals and petals. All are closely related to the old *V. Roxburghii* of Bengal, indifferently figured in this work (Tab. 2245), and which stands in much the same relation to its above-mentioned allies that *Cypripedium Argus* and the other Indian species alluded to under the Plate of that plant in this number (Tab. 6175) do to *C. venustum*. In both these cases the type of the group, in so far as this is represented by the first described of its species, is continental Indian, and inhabits the extreme western verge of the area occupied by the group; and is inferior in size, in luxuriance of foliage, and especially in the brilliant colouring of the flowers to its eastern allies.

July 1st, 1875.

Many other instances of this relation between the botanical characters of Asiatic plants and their geographical distribution may be cited; and the same remark applies to the animal kingdom and especially to the insects, which are so closely correlated in form, colouring, and habits of life, with the flowers they affect.

Vanda limbata was introduced by Messrs. Williams of Holloway, with whom it flowered in July of last year.

Descr. *Stem* in the cultivated species three feet high, as thick as the little finger, green, with long straggling roots as thick as a goosequill. *Leaves* six to eight inches long, distichous, linear, three-quarters to one and a half inches broad, recurved, keeled, obtusely unequally bifid at the top; dark green. *Raceme* six to eight inches long; peduncle about as long, laxly 10–12-flowered, green; bracts minute, triangular. *Pedicel* and *ovary* nearly two inches long, white. *Perianth* two inches in diameter. *Sepals* and *petals* nearly equal and similar, spathulate bright cinnamon-coloured within and tesselated, with a golden border, pale and suffused with lilac externally. *Lip* 3-lobed, pale lilac, produced behind into a short conic obtuse spur; lateral lobes small, rounded; midlobe as long as the sepals, quadrate, slightly fiddle-shaped, obscurely mucronate at the truncate tip, angles rounded, disk tumid, with five to seven parallel grooves, margins reflexed, claw with a prominent callus. *Column* short, hooded.—*J. D. H.*

Fig. 1, Ovary, lip, and column; 2, front view of lip and column:—*both magnified.*

Tab. 6174.

DIETES Huttoni.

Native of the Cape of Good Hope.

Nat. Ord. Iridaceæ.—Tribe Irideæ.

Genus Dietes, *Salisb.*; (*Klatt in Linnæa*, vol. xxxiv. p. 583).

Dietes *Huttoni*; rhizomatosa, vaginis basalibus brunneis scariosis, foliis ad caulem solitariis ensiformibus firmis glabris viridibus facie canaliculatis acuminatis sesquipedalibus vel bipedalibus, caule pedali sæpissime bifloro bracteis pluribus navicularibus acutis cincto, spathæ valvis lanceolatis acutis, pedicello bracteas superante, ovario cylindraceo, tubo supra ovarium nullo, perianthii limbo luteo, segmentis 3 exterioribus obovato-oblongis obtusis supra medium reflexis supra unguem purpureo lineatis, segmentis interioribus angustioribus brevioribus oblanceolatis erectis, stigmatibus late petaloideis, lamina perianthio duplo breviore, appendicibus apicalibus deltoideis denticulatis.

Sent by Mr. Hutton from the eastern province of the Cape Colony to the Kew collection, where it flowered in the month of March of the present year. This genus *Dietes* is scarcely distinct from *Iris* by any botanical character. One belongs to the Cape, and the other to the north temperate zone. *Dietes catenulata*, Klatt. (*Moræa catenulata*, Ker., *Bot. Reg.*, tab. 1074), a plant of our cool stoves, has white perianth-segments which spread from the very base when they expand. Our present plant is nearer *D. bicolor*, Sweet. (*Iris bicolor*, Lindl., *Bot. Reg.*, tab. 1404), but is still more like an *Iris* than either of them, and completely connects together the two genera; and the only appreciable character in which *Dietes* differs from *Moræa*, which is abundantly represented in the Cape flora, both as regards individuals and species, is that the former is rhizomatose and the latter bulbiferous.

Descr. Shortly rhizomatose, with copious wiry root-fibres. *Undereloped leaves* numerous, scarious, dark brown, sheathing the outside of the tufts of the stem and proper leaves. *Dereloped leares* not more than one to a stem, firm in texture, green, ensiform, one and a half or two feet long, three-quarters of an inch broad, deeply channelled down the face.

tapering to a long point. *Stem* terete, about a foot high, 2–3-flowered, covered with a close succession of lanceolate, acute, clasping bract-leaves. *Pedicels* two or three inches long, protruded from the bracts when developed. *Ovary* cylindrical, half to three-quarters of an inch long. *Perianth-limb* bright yellow, the outer segments obovate-oblong, obtuse, an inch and a half long, reflexing from below the middle, marked at the top of the claw with a circle of purple lines; inner segments bright yellow, oblanceolate, rather shorter than the outer. *Stigmas* an inch long, broadly petaloid, with broad deltoid reflexing toothed apical appendages. *Flower* sweet-scented.—*J. G. Baker.*

Tab. 6175.

CYPRIPEDIUM Argus.

Native of the Philippine Islands.

Nat. Ord. Orchideæ.—Tribe Cypripedieæ.

Genus Cypripedium, *Lindl.*; (*Endl. Gen. Plant.*, p. 220).

Cypripedium *Argus*; foliis omnibus radicalibus subdistichis oblongo-lanceolatis acutis pallide viridibus maculis saturatioribus tesselatis, scapo valido elongato glanduloso-pubescente rubro-fusco 1 flore, spatha ovario valde elongato multo breviore, sepalo supremo late ovato-cordato acuminato albo-purpureo striato, lateralibus connatis angustis labello suppositis, petalis lineari-oblongis obtusis undulatis margine ciliatis pallide viridibus maculis purpureis ocellatis, labelli sacco ostio retuso utrinque angulato, staminodio hippocrepiformi.

Cypripedium Argus, *Reichb. f. in Gard. Chron.* 1873, p. 608, *and* 1874, p. 710.

A very near ally indeed of the old *C. barbatum* of Java (Tab. nost. 4234), but differing in the very acuminate upper sepal, and the brilliant ocellated markings on the petals, as also in the much larger size, stouter habit, and longer ovary. Also allied to *C. purpuratum* (Tab. nost. 4901), *C. Hookeræ* (Tab. nost. 5362), and others, of which the type is the old *C. venustum* of Wallich (Tab. 2129). All these have a similar habit, tesselated leaves, a broad upper sepal, variously-marked petals, similar sacs to the lip, and a horseshoe-shaped extremity to the column. All are further natives of the hotter parts of India and its Archipelago, and suggest the idea that they are races of one variable species. *C. Argus* is no doubt much the handsomest of all these; it was discovered by Mr. Wallis, Messrs. Veitch's collector, in the Island of Luzon, one of the Philippines, and was flowered in Messrs. Veitch's establishment in March of the present year.

Descr. *Root* of stout fibres. *Leaves* five to eight inches long, by one to one and a half inches broad, subdistichous, oblong-lanceolate, acute, rather fleshy, nearly flat, pale green, tesselated with square dark green spots. *Scape* a foot high, stout, red purple, clothed with spreading glandular hairs, 1-flowered. *Spathe* two inches long, compressed, green, with

a very oblique mouth, much shorter than the stout erect glandular ovary, which is sometimes four inches long. *Flowers* four to five inches broad across the petals. *Upper sepal* broadly ovate-cordate, much acuminate, white with many dark green and purple stripes; lateral sepals combined into one ovate lanceolate blade, with a notched tip, which is placed under the lip, and is rather broader and larger than this is, pale with green stripes. *Petals* longer than the upper sepal, deflexed at an angle of forty-five degrees, three inches long, linear-oblong, obtuse, whitish, faintly tinged with green, rose-coloured towards the tip, studded with dark purple spots, some of which are ocellated; margins fringed with purple hairs, many of which are disposed in tufts in the marginal purple spots. *Lip* two inches long; sac inflated, smooth, dirty purple above; mouth with acute raised angular margins. *Staminode* horseshoe-shaped with incurved points. *Stigma* suborbicular.—*J. D. H.*

Fig. 1, Front; and 2, lateral view of column :—*both magnified.*

W Fitch del et Lith

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Tab. 6176.

CROCUS minimus.

Native of Corsica.

CROCUS Fleischeri.

Native of Asia Minor.

Nat. Ord. Iridaceæ.—Tribe Ixieæ.

Genus Crocus, *Linn.*; (*Baker in Gard. Chron.*, 1873).

Crocus *minimus*; vernalis, bulbo parvo ovoideo tunicis fibroso-membranaceis, scapo brevissimo spatha basali prædito, foliis 3-5 angustissimis synanthiis albido-vittatis marginibus revolutis, spatha propria univalvi, tubo purpureo 2–3-pollicari, limbi segmentis oblongo-oblanceolatis obtusis purpureis sæpe albo-variegatis, fauce glabra albida, antheris flavis, filamentis glabris, stigmatibus integris fulvis.

C. minimus, *DC. Fl. Franc.*, v. iii. p. 243; *Red. Lil.*, t. 81; *Reich. Ic. Crit.*, t. 1267; *Ic. Fl. Germ.*, t. 795; *et aliorum*, (*non Bot. Mag.*, tab. 2994).

C. insularis, *Gay in Bull. Feruss.*, 1831, p. 221; *Bot. Reg.*, 1843, t. 21; *Herbert in Journ. Hort. Soc.*, vol. ii. p. 261.

Crocus *Fleischeri*; vernalis, bulbo ovoideo tunicis fibrosis, scapo brevissimo, spatha basali nullo, foliis pluribus angustissimis glabris albo-vittatis marginibus valde revolutis, tubo albido bipollicari, spatha propria univalvi, limbi segmentis albis oblongis subacutis dorso longitudinaliter purpureo-lineatis, fauce glabra lutea, antheris citrinis, filamentis glabris, stigmatibus fulvis multifidis.

C. Fleischeri, *Gay in Bull. Feruss.*, 1831, p. 219.

C. Fleischerianus, *Herbert in Journ. Hort. Soc.*, vol. ii. p. 278.

C. candidus, "*Clarke*" *ex Boiss. Diag.*, No. 13, p. 16.

These are two welcome additions to our stock of spring Crocuses grown in this country. *C. minimus* was in the country before, but has been lost for many years, indeed till now, when Mr. George Maw has brought it again from Corsica. It is frequent in that island, flowering in low situations in January, and upon the mountains up to March, and occurs also in Sardinia. It is the smallest of all the spring-flowering Crocuses, and is most like some of the varieties of *versicolor*, but it has been confounded in this country with

biflorus, a form of which was figured under the name of *minimus* in Plate 2994 of this Magazine.

Crocus Fleischeri is another interesting addition to our stock of garden bulbs, made by Mr. Elwes, in his tour in Asia Minor last spring. It is a very distinct plant, and has never been in cultivation before. The points which best mark it from other spring-flowering species are the divided stigmas and very complicated bulb-coats, the fine fibres of which are plaited in regular vertical strands. It was discovered on limestone hills near Smyrna, by the botanist whose name it bears, and we have it also from Cilicia, gathered by Aucher Eloy, and from Lycia, gathered by the late Professor Edward Forbes. The specimen drawn came from the rich collection of the Rev. H. Harpur Crewe.

Descr. *of C. minimus*. *Corm* ovoid, very small, the tunics slightly fibrous. *Basal spathe* present. *Leaves* three to five to a fascicle, reaching as high as the flower, not more than a line broad, with a distinct white central band and very revolute edges. *Proper spathe* one-valved, but the valve occasionally bifid at the apex. *Perianth-tube* purple, about a couple of inches long. *Limb* an inch or less long in wild specimens, the divisions blunt oblanceolate-oblong, mixed purple and white, the outer usually tinged with yellow on the outside, the throat white and glabrous. *Anthers* yellow, a quarter or half an inch long, equalling or exceeding the glabrous filaments. *Stigmas* deep orange-red, entire, gradually widening from the base to the tip.

Descr. *of C. Fleischeri*. *Corm* ovoid middle-sized, the coats made up of fine fibres plaited in regular strands. *Basal spathe* absent. *Leaves* overtopping the flower, six to twelve to a corm, very narrow, with a distinct white band and revolute edges. *Proper spathe* monophyllous, sometimes cleft at the tip. *Tube* about a couple of inches long, white with purple stripes. *Perianth-limb* an inch or more deep, the segments oblong subacute, pure white with lilac stripes down the back, the throat yellow, glabrous. *Anthers* lemon-yellow, exceeding the glabrous filaments. *Stigmas* saffron-yellow, more or less cut at the tip, but much less so than in *nudiflorus* and *speciosus*.—*J. G. Baker.*

Fig. 1, *Crocus minimus*:—*natural size*; 2, an outer corm coat; 3, an anther; 4, top of the style, with stigmas:—*all magnified*. Fig. 5, *Crocus Fleischeri*: *natural size*; 6, an anther; 7, top of style with stigmas:—*all magnified*.

Tab. 6177.

TULIPA Greigi.

Native of Turkistan.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.

Genus Tulipa, *Linn.*; (*Baker in Journ. Linn. Soc.*, vol. xiv. p. 275).

Tulipa *Greigi;* bulbo magno, tunicis fuscis apicibus intus strigosis, caule brevi puberulo robusto unifloro, foliis 3-4 glauco-viridibus copiose pulchre castaneo maculatis subtiliter puberulis prope marginem valde undulatis, inferioribus oblongis, superioribus lanceolatis, perianthio aperte campanulato 3–3½-pollicari, segmentis omnibus subconformibus obovatis cuspidatis vel emarginatis splendide coccineis, ad unguem maculâ magna nigra flavo-marginata prædita, staminibus perianthio quadruplo brevioribus, antheris flavis oblongis filamento nigro lanceolato æquilongis, ovario cylindraceo stamina superante, stigmate profunde sulcato auriculis reflexis.

T. Greigi, *Regel Enum. Tulip.*, p. 49; *Gartenflora*, vol. xxii. (1873) p. 290. tab. 773; *Baker in Journ. Linn. Soc.*, vol. xiv. p. 289.

During the last two years no less than three striking new Tulips have been added to the list of species cultivated in this country. Although they come from different localities, they all three resemble one another closely, both from a botanical and horticultural point of view. They are *T. bœtica*, of Boissier, a native of Greece; *T. Eichleri*, of Regel, a native of Georgia; and *T. Greigi*, the subject of the present Plate. The two former have not yet been figured, but we hope soon to be able to find room for them. To compare them with familiar types, all the three species come between *T. suaveolens*, the common early Duc Van Thol tulip of the gardens, on the one hand; and on the other, *T. Oculis-solis* and *T. præcox*. They show the dwarf habit, downy stems and nearly uniform obtuse perianth-segments of the first, but have the large, nearly black basal blotch, with a distinct yellow border, which fills up the whole claw of the perianth-segments of the latter, and gives to the flower its most characteristic mark as compared with *T. Gesneriana* and other common kinds. We received at Kew *T. Greigi* direct

from Dr. Regel, but it has not yet flowered with us. The Plate was made, partly from a plant sent through Mr. Burbidge from the New Plant and Bulb Company of Colchester, and partly from a very fine specimen forwarded by our indefatigable correspondent, Max Leichtlin, Esq., of Baden-Baden, who has grown it in Germany with great success. The species was gathered in Turkistan by Sewerzow and Fedschenko, and was named by Dr. Regel in compliment to General Greig, President of the Imperial Russian Horticultural Union.

Descr. *Bulb* as large as a small hen's egg, the membranous brown tunics slightly hairy on the inner side towards the top. *Stem* two to eight inches high, 1-flowered, stout, terete, distinctly downy. *Leaves* usually four, glaucous-green and obscurely downy on the face, spotted with copious oblong and linear blotches of a bright chestnut-brown colour, much undulated towards the cartilaginous border, the lower ones oblong acute, five or six inches long by two or two and a half inches broad, the two upper ones lanceolate. *Perianth* erect, three or three and a half inches deep, campanulate with the divisions spreading abruptly from about the middle when fully expanded, all nearly uniform in shape, obovoid, narrowed gradually from three-quarters of the way up to a deltoid claw, the apex cuspidate or emarginate, the upper three-quarters of the segment bright crimson, the claw filled up with a large obovate-rhomboid blotch with a bright yellow aureole. *Stamens* three-quarters of an inch long, the oblong yellow anther equalling in length the lanceolate, flattened, black filament. *Ovary* cylindrical, an inch long, narrowed to the neck; stigma yellow, twice as broad as the neck of the ovary, deeply channelled, the auricles conspicuously reflexed.—*J. G. Baker.*

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CONTENTS OF No. 367, JULY, 1875.

TAB. 6173.—VANDA LIMBATA.

„ 6174.—DIETES HUTTONI.

„ 6175.—CYPRIPEDIUM ARGUS.

„ 6176.—CROCUS MINIMUS and CROCUS FLEISCHERI.

„ 6177.—TULIPA GREIGI.

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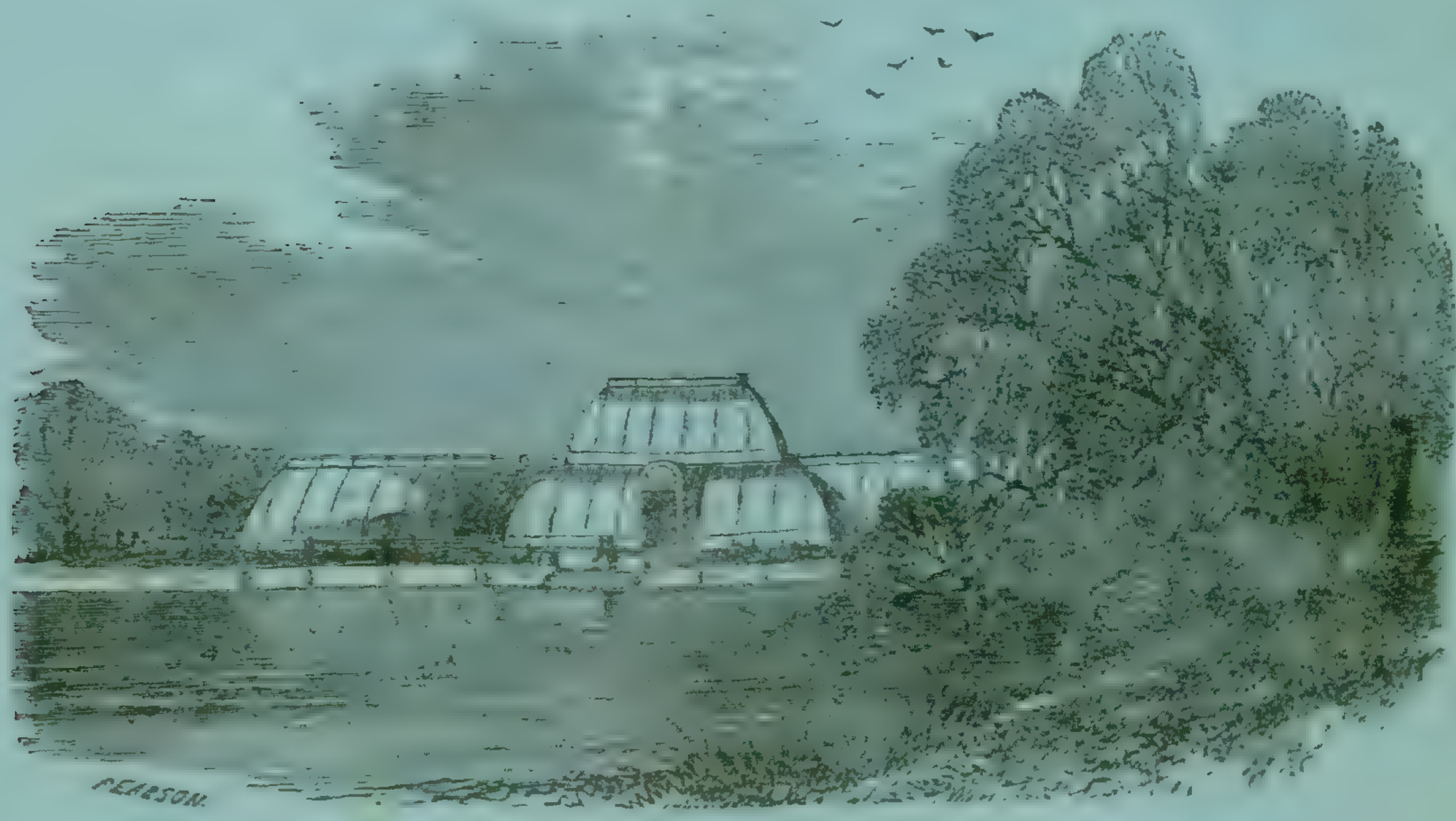

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Tab. 6178.

MERTENSIA alpina.

Native of the Rocky Mountains.

Nat. Ord. Boragineæ.—Tribe Lithospermeæ.

Genus Mertensia, *Roth.*; (*DC. Prodr.*, vol. x. p. 87).

Martensia *alpina;* gracilis, erecta, sericeo-pilosa v. glabra, caule simplici, foliis auguste spathulato- v. lanceolato-oblongis obtusis subacutisve superne scaberulis v. lævibus magnibus ciliatis, nervis obscuris, calyce alte 5-fido corollæ tubo breviore, lobis oblongis lanceolatisve acutis obtusisve, corollæ limbo breviter 5-fido, filamentis brevibus antheris æquilatis.

M. alpina, *Don, Gen. Syst. Gard.*, vol. iv. p. 372; *DC. Prodr.*, vol. x. p. 91; *A. Gray in Amer. Jour. Arts & Sc.*, vol. xxxiv. (1862) p. 340, *et in S. Watson, Bot. 40th Parallel,* p. 461.

M. Drummondii, *Don ex A. Gray, l.c.*

Lithospermum Drummondii, *Lehm. Pugill.*, 2, p. 26, *et in Hook. Fl. Bor. Amer.*, vol. ii. p. 86.

Pulmonaria alpina, *Torr. in Ann. Lyc. New York*, vol. ii. p. 224.

A lovely little rock-plant, a native of the higher parts of the Rocky Mountains, and like many such, inhabiting an immense stretch of latitude, namely from 39° N., to the Arctic Sea coast. It is an extremely variable plant, as Dr. Gray remarks; who concludes that the Arctic coast specimens, which I have referred to *M. virginica*, are indeed specifically referable to the Rocky Mountain one from Colorado. The latter, though resembling *M. virginica* in habit, is certainly, as Gray rightly points out, well distinguished by the stout broad filaments, which are those of the species here figured. Other variations occur in the hairyness of its parts, including the tube of the corolla within; which is, according to Gray, glabrous or pilose. In the Arctic coast specimens and Dr. Parry's from the Colorado district, the stamens are inserted on the throat of the corolla, as they are in the plant here figured; but in Dr. James', which resemble the Arctic coast ones in habit, they are inserted far down the tube, as they are in all the specimens from the west side of the Rocky

Mountains, which are moreover all hirsute. Dr. Gray further remarks, that those specimens with the stamens inserted low down have all short styles, which is contrary to the dimorphism of the Boragineæ. It will be observed that in our figure the stamens are inserted on the throat of the corolla, and the style is long.

M. alpina was imported by Messrs. Backhouse of York, who flowered it in May last.

Descr. Perennial, glabrous, or clothed more or less with soft hirsute pubescence. *Stems* simple, erect, sparingly leafy, slender. *Leaves* sessile, chiefly cauline, one to one and a half inches long, linear-oblong or spathulate, radical often broader, acute or obtuse, upper surface smooth or muricate, margin ciliate. *Cymes* lax-flowered. *Flowers* drooping, one-third to two-thirds of an inch long; bracts leafy; pedicels short, slender. *Calyx* shorter than the corolla-tube, 5-cleft to the middle or lower, segments oblong and obtuse, or lanceolate and acute. *Corolla* light or dark blue, tube cylindric; limb campanulate, very shortly 5-lobed, lobes rounded; throat naked or pilose. *Stamens* inserted at the base of the throat or lower down; filaments as broad as the oblong anthers. *Style* short or long.—*J. D. H.*

Fig. 1, Flower; 2, corolla laid open; 3, pistil and disk:—*all magnified.*

Tab. 6179.

MICHELIA lanuginosa.

Native of the Himalaya.

Nat. Ord. Magnoliaceæ.—Tribe Magnolieæ.

Genus Michelia, *Linn.*; (*Benth. & Hook. f. Gen. Plant.*, vol. i. p. 19).

Michelia *lanuginosa;* ramulis foliis subtus alabastrisque sericeo v. velutino-tomentosis foliis elliptico-lanceolatis acuminatis supra glaberrimis, floribus sessilibus pallide stramineis, sepalis petalisque ad 18 anguste lineari-oblongis obtusis acutisve, ovariis et gynophoro dense tomentosis, carpellis maturis paucis discretis obovoideis pedicellatis verrucosis pedicellatis.

M. lanuginosa, *Wall. Tent. Fl. Nap.*, p. 8, t. 5; *Cat.* n. 6493; *Hook. f. & Thoms. Fl. Ind.*, vol. i. p. 80; *Hook. f. Fl. Brit. Ind.*, vol. i. p. 43.

M. velutina, *DC. Prodr.*, vol. i. p. 79.

Described as a lofty tree in Nipal, according to Wallich, by whom it was discovered in 1821; though I never saw it forming anything but a small tree in Sikkim, where I found it at an elevation of 6–7000 feet in 1848. It has also been collected in Bhotan by Griffith, and in the Khasia Mountains by Lobb. The flowers, which are very sweet-scented, vary much in size, from three to four and a half inches in diameter, in the number of sepals and petals, and in the depth of their straw colour.

Michelia lanuginosa was sent to Kew from Sikkim by Dr. Thomson, when superintendent of the Botanic Gardens of Calcutta, about twenty years ago, and was planted out in the Temperate House about ten years ago. It now forms a small sparingly-branched tree, twelve feet high, It never flowered till the present year, when many buds formed in March, and which, owing to the cold and cloudy spring, never opened till May, by which time most had fallen off unopened. Wallich observes that the scent of the flowers is less powerful, and therefore more agreeable, than in the other common Indian species of the genus, of which the Champaca is the best known.

Descr. A tree; branchlets, leaves beneath, and buds

clothed with a thick soft white tomentum that is silky in the young parts. *Leaves* drooping, five to eight inches long, elliptic-lanceolate, acuminate; rounded or acute at the base, thinly coriaceous, bright green above; petiole one half to three quarters of an inch long, tomentose. *Stipules* very deciduous, densely tomentose. *Flowers* subsessile, axillary towards the ends of the branchlets, very variable in size, three to four and a half inches in diameter. *Sepals* and *petals* very numerous, about eighteen, the outer densely silky and concave, the inner spreading flat, rather flexuous, linear-oblong, acute or obtuse, pale straw-coloured. *Anthers* very narrow, apiculate, on short filaments. *Gynophore* and *ovaries* densely tomentose, except the styles, which are glabrous. *Ripe carpels* four to five inches; spike an inch or more long, broadly obovoid, pedicelled, warted, slightly compressed, 1–3-seeded. *Seeds* large, with a scarlet aril.—*J. D. H.*

Fig. 1, Stamen; 2, gynophore and ovaries:—*both magnified.*

Tab. 6180.

TYPHONIUM Brownii.

Native of Sub-tropical Australia.

Nat. Ord. Aroideæ.—Tribe Dracunculeæ.

Genus Typhonium, *Schott.*; (*Schott. Prodr. Syst. Aroid.*, p. 105).

Typhonium *Brownii*; folio hastato-tripartito v. profunde trilobo, segmentis lobisve elliptico- v. lineari-lanceolatis acuminatis lateralibus horizontalibus, sinubus rotundatis acutisve, spatha breviter pedunculata, tubo globoso v. ovoideo viridi, lamina 5-pollicari late ovata acuminata concava marginibus recurvis extus viridi intus luride purpurea, spadicis parte feminea brevi conica, parte mascula cylindracea stipitata, stipite basi organibus neutris filiformibus circinnato-decurvis onusto, appendice fusiformi-conoideo v. elongato obtuso v. subacuto brumeo-purpureo nitido spatha multo breviore.

T. Brownii, *Schott, Aroid.*, vol. i. p. 77, 1855; *Prodr. Syst. Aroid.*, p. 107; *F. Muell. Fragm. Phyt. Austral.*, vol. viii. p. 187.

Arum Orixense, *Brown, Prodr.*, p. 336, *non Roxb.*

A very curious Aroid, belonging to a genus that extends from Western India to Australia and the Malayan Islands, and of which probably many species are still to be discovered in New Guinea and the eastern islands of the China sea. It is a native of Eastern Australia, extending from Port Jackson northward to Rockingham bay in latitude 19° S., and, according to Mueller, varying in the length of the club-shaped apex of the spadix from one to five inches, as also in the breadth of the spathe. Under these circumstances it is not surprising that Robert Brown referred this to the *T. orixense* (*Arum orixense* of Roxburgh), a plant very widely spread in tropical and subtropical India, and which yet may prove to be a geographically-separated variety of this.

Typhonium Brownii was flowered by Mr. Bull in April last, from bulbs imported by him from Rockhampton in Queensland, and sent for figuring in the *Botanical Magazine*. It is another of the many rare and remarkable plants, of little commercial worth perhaps, but of great scientific interest, for the accurate knowledge of which botanists are so much in-

debted to Mr. Bull's horticultural skill and love of curious plants.

Descr. *Corm* of irregular shape, about the size of a walnut, sending up several leaves and spathes at the same time, and then going to rest for a season. *Leaves* very variable in size and shape, 3-partite or 3-lobed, the segments or lobes five to seven inches long, lanceolate or elliptic-lanceolate or linear, acuminate, the lateral spreading, all rather membranous, deep green; petiole five to ten inches long, stout, cylindrical. *Scape* one to three inches long, stout. *Spathe* four to seven inches long; tube globose or ovoid, green; limb broadly ovate, acuminate-concave, open, coriaceous, lurid purple within, and obscurely fasciated with darker transverse lines, margins recurved; back green, suffused with purple towards the margins. *Spadix* shorter than the spathe; male portion shortly conic, covered with densely-crowded ovaries; above this is a cylindric column, one to two inches long, covered for three-quarters of an inch at the base with deflexed circinate filaments (deformed ovaries) that descend over the ovaries, and no doubt entangle insects there; male portion half an inch long or more, cylindric, dull purple; appendix ovoid or subulate, one to five inches long, glossy dark-brown, obtuse acute or truncate. *Anthers* shortly cuneate, 4-celled, with four terminal pores. *Ovaries* 1-celled, with a subsessile peltate stigma; ovule one, ascending.—*J. D. H.*

Fig. 1, Spadix; 2, anther; 3, deformed ovary; 4, ovary; 5, vertical, and 6, transverse section of ditto:—*all magnified.*

Tab. 6181.

ERANTHEMUM HYPOCRATERIFORME.

Native of Tropical Western Africa.

Nat. Ord. Acanthaceæ.—Tribe Eranthemeæ

Genus Eranthemum, *Linn.*; (*Nees in A. DC. Prodr.*, vol. xi. p. 445).

Eranthemum *hypocrateriforme*; fruticosum, fere glaberrimum, caule 4-gono, foliis ovatis subacutis petiolatis subtus pallidis, spicis terminalibus puberulis solitariis v. fasciculatis, bracteis parvis ovatis setaceo-acuminatis, sepalis subulato-lanceolatis, corollæ tubo gracili pollicari, limbi patentis extus straminei intus coccinei lobis subæqualibus elliptico-obovatis obtusis basi saturate rubris et nigro punctulatis, antheris parvis exsertis brunneis.

E. hypocrateriforme, *Br. ex Rœm. & Sch. Syst. Veg.*, vol. i. p. 175; *Willd. Sp. Pl. ed. Dietr.*, vol. i. p. 445; *Nees in DC. Prodr.*, vol. xi. p. 454; *Benth. in Hook. Niger Flora*, p. 484; *T. Anders. in Journ. Linn. Soc.*, vol. vii. p. 52.

E. affine, *Spreng, Syst. Veg.*, vol. i. p. 69.

Justicia hypocrateriformis, *Vahl, Enum.*, vol. i. p. 165.

The genus *Eranthemum*, of which there are so many Indian, Pacific Islands, and Brazilian species, is comparatively scarce in Africa, where only six species have been hitherto detected, though no doubt many more await discovery. Of these, the present is much the handsomest, and is indeed one of the most attractive of the genus. It is apparently confined to the West Coast, extending from Accra to Sierra Leone, from which latter place seeds were received in 1870 from the Rev. Mr. Bockstadt, a very intelligent gentleman attached to the mission there, to whom the Royal Gardens are indebted for many interesting plants, and who has since fallen a victim to disease contracted in that pestilent climate. *E. hypocrateriforme* flowered in the Royal Gardens in May of the present year.

Descr. A small shrub, glabrous throughout, except the rachis and peduncle of the spikes. *Stem* and *branches* acutely quadrangular, rather stout. *Leaves* two to three inches long, ovate, with an obtuse contracted point, contracted at the base

into a petiole half an inch long, firmly coriaceous, dark green above, pale beneath. *Spikes* solitary at the end of the branches, or crowded on short subterminal branches, one to three inches long, sessile or shortly stalked; rachis and peduncle finely downy. *Bracts* shorter than the calyx, appressed, ovate with subulate points, keeled. *Calyx* about one-third of an inch long; sepals subulate, lanceolate, quite glabrous. *Corolla-tube* one inch long and upwards, very slender, slightly curved; limb one inch in diameter, straw-coloured on the back, bright red above; segments flat, horizontal, elliptic-obovate-obtuse, the lower rather the larger, and the two upper rather the smaller, each with a very dark red base, which is speckled with almost black dots. *Anthers* shortly protruded, dark blue-purple. *Ovary* narrowly ovoid, on an obscure annular disk.—*J. D. H.*

Fig. 1, Stamens; 2, calyx and style:—*all magnified.*

Tab. 6182.

ALLIUM narcissiflorum.

Native of Dauphiné and Piedmont.

Nat. Ord. Liliaceæ.—Tribe Allieæ.

Genus Allium, *Linn.*; (*Kunth. Enum.*, iv. 379).

Allium *narcissiflorum*; rhizomate brevi obliquo fibris setosis copiosis vestito, foliis 5–6 ascendentibus glabris glaucis anguste linearibus planis, scapo subcylindraceo folios superante, umbellis 2–10-floris ante anthesin cernuis, spatha monophylla ovata brevi, pedicellis flore brevioribus, perianthio campanulato purpureo pro genere magno, segmentis obovato-oblongis cuspidatis late imbricatis ad finem ascendentibus, genitalibus perianthio duplo brevioribus, filamentis conformibus linearibus, stylo apice breviter cuspidato, ovulis in loculo geminis, seminibus triquetis nigris.

A. narcissiflorum, *Vill. Delph.*, vol. i. p. 267, et vol. ii. p. 258, tab. 6; *Kunth Enum.*, vol. iv. p. 434; *Gren. et Godr. Flor. France*, vol. iii. p. 211; *Regel Mon. All.*, p. 181.

A. grandiflorum, *Chaix in Vill. Delph.*, vol. i. p. 320; *Lam. Encyc.*, vol. i. p. 68.

A. pedemontanum, *Willd. Sp. Plant.*, vol. ii. p. 77; *Reich. Ic. Fl. Germ.*, tab. 504, fig. 1104.

A. nigrum, *All. Pedem.*, p. 158, tab. 25, *non Linn.*

A. roseum, *Linn. Herb.*

This is by far the most showy in its flowers of all the Alliums. It is a native of the limestone mountains of the south-east of France and north-west of Italy, and belongs to the large group of species in which the annual bulbs arise from a creeping perennial root-stock, which is covered by a dense coat of matted fibres. Although an extremely well-marked plant, it has been much misunderstood by botanical authors. Linnæus confused it with *Allium roseum*, and Allioni with *Allium nigrum*, both of which belong to the section which has no root-stock, and as will be seen from the synonyms cited, it was named twice over in the "Flora de Dauphiné" of Villars. The specimens from which the plate was drawn, were procured by Mr. G. Maw from Monte Campione, in the north-west of Italy.

August 1st, 1875.

Descr. *Bulbs*, arising from an oblique perennial root-stock thicker than a quill, which gives out downwards abundant radicular fibres, and is sheathed by a dense coating of dry matted wiry fibres. *Leaves* five or six, sheathing the base of the stem for about a couple of inches, all leaving it at the same point, suberect, fleshy, narrow-linear, six or nine inches long, two or three lines broad, flat, fleshy, glaucous. *Scape* over-topping the leaves, nearly terete. *Flowers* two to ten in a close umbel which droops before they expand. *Spathe* large membranous ovate-lanceolate, usually simple, tinged with purple. *Pedicels* shorter than the flowers. *Perianth* permanently campanulate, deep purple, half or even three-quarters of an inch deep, the segments obovate or oblong with a distinct cusp. *Stamens* not more than half as long as the perianth, the filaments uniform slightly flattened. *Style* twice as long as the depressed globose ovary, tricuspidate at the very tip. *Ovules* two in a cell. Seeds black triquetrous. —*J. G. Baker.*

Fig. 1, Flower, with the corolla laid open; 2, apex of pedicel and ovary —*both magnified.*

Tab. 6183.

COLUMELLIA oblonga.

Native of Ecuador.

Nat. Ord. Columelliaceæ.

Genus Columellia, *Ruiz & Pav.*; (*Endl. Gen. Plant.*, p. 745).

Columellia *oblonga*; ramulis sericeo-pubescentibus, foliis planis petiolatis obovato- v. elliptico-lanceolatis obtusis integerrimis v. apices versus dentatis subtus glabris v. sericeo-pubescentibus, nervo percurrente calloso-apiculatis cymis, terminalibus pedunculatis sericeis.

C. oblonga, *Ruiz et Pav. Fl. Per. et Chil.*, vol. i. p. 28, t. 8, f. i. *Vahl, Enum.*, vol. i. p. 300 (Columella); *DC. Prodr.*, vol. vii. p. 549; *Endl. Iconog.*, t. 84.

C. sericea, *Humb. Bonpl. & Kunth, Nov. Gen. Am.*, vol. ii. p. 388; *DC.* l.c.

The very remarkable plant here figured belongs to one of the comparatively few genera of flowering plants whose affinities are quite unsettled, although their structure is perfectly well understood. It was referred to the neighbourhood of Jasmines by Don, who raised the genus to the rank of a natural order, but differs in the adherent calyx, seeds, and other characters. Lindley places it between *Vaccinicæ* and *Rubiaceæ*, confessing, however, that "it is impossible to say where it really ought to stand." De Candolle suggests its affinity with *Gesneriaceæ*, and no better has been hitherto found, though *Saxifrageæ* have been preferred upon plausible grounds. Decaisne considers it to be very near *Rubiaceæ*, and I have suggested *Loganiaceæ*.

There are but two species known of the genus, and both are natives of the Andes, where, however, they have no wide range, being apparently confined to the Andes of Peru and Equador.

C. oblonga inhabits an elevation of 9000 to 13,000 feet, and is very common in the heights above Quito. It was raised from seeds sent by Dr. Jameson to J. Anderson Henry, Esq., who forwarded a young plant to Kew in 1870, which

flowered in the Temperate House for the first time in January of the present year.

Desc. A small tree, with opposite silky branchlets; branches covered with brown bark. *Leaves* opposite, one to two inches long, obovate or elliptic-lanceolate, obtuse, with an apiculus formed by the swollen tip of the decurrent midrib, quite entire or toothed towards the tip, coriaceous, contracted at the base into a short petiole, upper surface bright green and shining, under surface glabrous or clothed with silky pubescence. *Cymes* terminal and terminating short lateral branches; laxly 6–10-flowered, shortly peduncled, very silky; bracteoles small. *Flowers* shortly pedicelled, one-half to three-quarters inch in diameter. *Calyx-tube* adherent, silky; lobes five, unequal, oblong, subacute. *Corolla* coriaceous, golden yellow, tube short, broad; lobes five, spreading, orbicular, rather concave, imbricate. *Stamens* two, inserted near the base of the corolla; filaments short, broad, ending in a dilated connective bearing two sinuous anther-cells; pollen simple, globose. *Ovary* almost wholly sunk in the calyx-tube, its crown hemispheric; style short, stigma broad, obscurely 2–4-lobed; ovules very many, on two parietal bifid placentæ that project into the axis of the cell, and subsequently coalesce, forming a 4-celled ovary. *Capsule* 4-celled, crown septicidally 2-valved, the valves bifid and splitting the style into four. *Seeds* very numerous, oblong, testa smooth, embryo clavate, minute near the base of the fleshy albumen.—*J. D. H.*

Fig. 1, Calyx and ovary; 2, corolla laid open; 3 and 4, stamens:—*all magnified.*

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CONTENTS OF No. 368, AUGUST, 1875.

Tab. 6178.—MERTENSIA ALPINA.
„ 6179.—MICHELIA LANUGINOSA.
„ 6180.—TYPHONIUM BROWNII.
„ 6181.—ERANTHEMUM HYPOCRATERIFORME.
„ 6182.—ALLIUM NARCISSIFLORUM.
„ 6183.—COLUMELLIA OBLONGA.

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TAB. 6184.

DION EDULE.

Native of Mexico.

Nat. Ord. CYCADEÆ.—Tribe ENCEPHALARTEÆ.

Genus DION, *Lindl.* (*Alph. DC. Prod.*, v. xvi., pt. 2, p. 537).

DION *edule*; trunco 3-5 pedali, foliis junioribus pilosis demum glaberrimis 3-5 pedalibus pinnatifidis anguste lanceolatis rigidis, segmentis utroque latere ad 100 erecto-patentibus lineari-lanceolatis subulato-acuminatis pungentibus multinerviis, rachi supra plana subtus convexa, strobilis [illegible]

Plate 6184 *is unavoidably postponed till the next number.*

Bull. Soc. Botan. France, *Miquel in Linnæa*, XVIII. (1844), p. 97.

PLATYZAMIA, *Zuccarini in Abhandl. Math. Phys. Kl. Bayer Akad.*, v. iv., p. 23, t. 4.

For greenhouse decoration the remarkable Cycad here figured is at once the most easily cultivated, effective, and on account of the flatness of its rigid frond, the most easily of its class kept free of that pest of Cycads, the scale insect. It is a native of Mexico, where it is said to be found in various provinces, and has been in cultivation since 1843, when it was brought from that country by a Mrs. Lavater, who presented a plant to the Horticultural Society. Dr. Lindley remarked that about the same time Messrs. Loddiges bought a stock of the plant. The earliest Kew plant was received from Siebold. With less apparent justice Lemaire attributes to Lindley "un inconcevable lapsus calami" in stating that the seeds were destitute of embryo; a statement that we have no reason to doubt the correctness of, seeing how often such is the case in *Cycadeæ*.

TAB. 6184.

DION EDULE.

Native of Mexico.

Nat. Ord. CYCADEÆ.—Tribe ENCEPHALARTEÆ.

Genus DION, *Lindl.* (*Alph. DC. Prod.*, v. xvi., pt. 2, p. 537).

DION *edule*; trunco 3-5 pedali, foliis junioribus pilosis demum glaberrimis 3-5 pedalibus pinnatifidis anguste lanceolatis rigidis, segmentis utroque latere ad 100 erecto-patentibus lineari-lanceolatis subulato-acuminatis pungentibus multinerviis, rachi supra plana subtus convexa, strobilis ♂ pedalibus cylindraceis breviter crasse pedunculatis albolanatis basi bracteis ovato-lanceolatis longe acuminatis densissime villoris stipatis, squamis ♂ pollicaribus cuneatis pallide cæruleis apicibus lanuginosis trapezoideis apice inferiore densissime antheriferis, strobilis ♁ ovoideis densissime lanuginosis squamis apicibus longe productis ovato-lanceolatis.

DION EDULE, *Lindl. Bot. Reg. Misc.*, 1843, No. 82, *Miquel in Linnæa*, v. xix. (1846). p. 415, *et* xxi. (1848), p. 567; *Walp. Ann.*, v. i., p. 747, *et* v. iii., p. 453; *Lemaire, Ill. Hortic.* v. ii., *Misc.* p. 91 *cum Ic.*; *A. DC. Prod.*, v. xvi., pt. 2, p. 537.

D. imbricatum, *Miq.*; D. aculeatum, *Lem.*, *et* D. angustifolium, *Miq.*, omnia, *l.c.*, Lemaire, *l.c.*

ZAMIA? Maelen, *Miquel in Linnæa*, xviii. (1844), p. 97.

PLATYZAMIA, *Zuccarini in Abhandl. Math. Phys. Kl. Bayer Akad.*, v. iv., p. 23, t. 4.

For greenhouse decoration the remarkable Cycad here figured is at once the most easily cultivated, effective, and on account of the flatness of its rigid frond, the most easily of its class kept free of that pest of Cycads, the scale insect. It is a native of Mexico, where it is said to be found in various provinces, and has been in cultivation since 1843, when it was brought from that country by a Mrs. Lavater, who presented a plant to the Horticultural Society. Dr. Lindley remarked that about the same time Messrs. Loddiges bought a stock of the plant. The earliest Kew plant was received from Siebold. With less apparent justice Lemaire attributes to Lindley "un inconcevable lapsus calami" in stating that the seeds were destitute of embryo; a statement that we have no reason to doubt the correctness of, seeing how often such is the case in *Cycadeæ*.

Dion edule has been cultivated at Kew, almost ever since its introduction into Europe, and thrives both in the cool end of the Palm House and in the octagon of the Temperate House, forming a trunk 3 to 4 feet high and 8 to 10 inches in diameter. The spread of the crown is 8 to 10 feet, and contains as many as 50 fronds, each 4 to 5 feet in length, and 6 to 9 inches in breadth. Both sexes cone frequently, the male cone varying from 9 to 12 inches in length, the female from 7 to 12 inches. It is a variable plant, and the three species cited under the synonyms were founded upon variations in the form of the fronds, in the number of their nerves, and their slight toothing in a young state. A fourth species has lately been proposed by Lemaire, under the name of *D. strobilaceum*, of which I know nothing.

The seeds of *Dion* are eaten by the Mexicans, both the fleshy testa and the albumen, which latter in other Cycadeæ is full of a starch that affords an excellent arrow-root. Miquel observes that the genus *Dion* is more nearly allied to certain fossil genera of *Cycadeæ* than is any other living representative of the order, and that in the form of the inflorescence and insertion of the ovules it closely resembles the genus *Zamoistrobus*—J. D. H.

Fig. 1.—Reduced figure of the whole plant; 2, portion of frond; and 3, top of stem, petiole and male cone, both of the *natural size*; 4, scale of male cone seen from above; 5, the same seen from below, slightly magnified; 6, anther; 7, pollen grains, both *highly magnified*; 8, lateral and, 9, central view of scale of female cone, of the *natural size*.

Tab. 6185.

PRIMULA Parryi.

Native of the Rocky Mountains.

Nat. Ord.—Primulaceæ.—Tribe Primuleæ.

Genus Primula, *Linn.*—*Benth. and Hook. Gen. f.*, *Plant.*, v. ii., p. 631 (ined.).

Primula (*Auricula*) *Parryi*, elata, minute puberula, rhizomate crasso, foliis carnosis 6-9-pollicaribus anguste obovato-oblongis obtusis v. subacutis supra glaberrimis subtus glanduloso-puberulis obscure denticulatis petiolo crasso, scapo elato robusto, involucri bracteis valde inæqualibus parvis oblongo-lanceolatis erectis subacutis integerrimis, umbella unilaterali multiflora, pedicellis elongatis inæquilongis, calycis glandulosi tubo tereti ovoideo, lobis subæquilongis ovato-subulatis erectis, corollæ tubo calycem vix superante, limbi lobis obovato- v. rotundato-obcordatis rubro-purpureis, fauce aureo inappendiculato.

P. Parryi, *A. Gray in Amer. Journ. Arts and Sc.*, ser. ii., v. xxxiv. (1862), p. 257; *Watson*, *Bot.*, 40th parall., p. 213; *Porter and Coulter*, *Synops. Fl. Colorado*, p. 88.

Except perhaps the *P. japonica* (tab. nostr. 5916), this is the handsomest Primrose ever introduced into this country. It was discovered about 1860, in the Rocky Mountains of the Colorado district, always on the borders of alpine streams near the snow-line, flowering in July, where it gives the name of "Primrose Creek" to one of the affluents of the Colorado River, in about lat. 37° N. Since that period it has been discovered commonly in alpine and subalpine spots in Nevada, in the E. Humboldt range, Clover Mountains, Gray's Peak, and Mount Lincoln, ascending to 13,000 feet altitude; thus having a considerable range, both in latitude and longitude. Dr. Gray compares the species with the Caucasian *P. pycnorhiza*, and with *P. algida* and *P. nivalis*, and suggests the possibility of all being forms of one—a question which cannot be decided without more copious specimens than I possess. *Primula Parryi* was raised and flowered by Messrs. Backhouse, of York, who sent the specimen here figured to Kew in May of the present year.

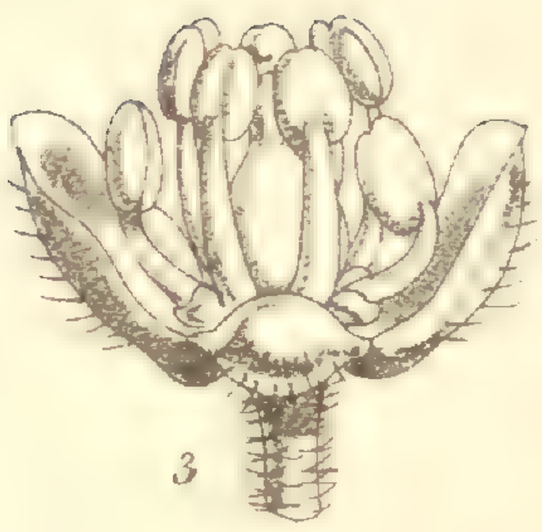
Descr. Densely tufted; rootstock very stout, thicker than the thumb. *Leaves* crowded, suberect, 5-9 inches long, narrowly obovate-oblong, obtuse or subacute, sessile or narrowed into the very broad petiole, obscurely toothed or quite entire,

shining above, paler and minutely puberulous and glandular beneath, as are the scape and inflorescence. *Scape* 6-18 inches high, robust, pale green. *Umbel* of many flowers, one-sided, bracts 6-8, erect; very unequal, $\frac{1}{4}$ to $\frac{1}{3}$ inch long, oblong-lanceolate, acute; pedicels 1 to 3 inches long, slender; flowers inclined or horizontal. *Calyx-tube* ovoid, glandular, terete, contracted at the base; lobes as long as the tube, ovato-subulate. *Corolla* 1 inch in diameter, tube rather longer than the calyx, yellow, without folds; limb flat or slightly cupped, bright red purple; lobes variable in breadth, obovate- or orbicular-obcordate. *Stamens* included, filaments very short. *Capsule* globose, included in the calyx-tube.—*J. D. H.*

Fig. 1.—Corolla laid open with stamens and ovary exposed; *magnified.*

2

1



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Tab 6186.

DRABA Mawii.

Native of Spain.

Nat. Ord. Cruciferæ.—Tribe Alyssineæ.

Genus Draba, *Linn.* (*Benth. and Hook. f., Gen. Plant*, vol. i., p. 74.)

Draba (Aizopsis) *Mawii*, parvula, dense cæspitosa, caulibus brevissimis compactis, foliis densissime rosulatis breviter lineari-oblongis obtusis setoso-ciliatis nervo subtus valido, scapis per-brevibus aphyllis paucifloris, floribus amplis brevissime pedicellatis, sepalis oblongis concavis dorso setosis, petalis cuneato-obovatis albis, siliquis corymbosis breviter ellipsoideis complanatis hispidis ad 8-spermis stylo brevissimo.

It is not without hesitation that I propose as new a European species of the large and very variable genus *Draba*, but after a very careful examination and comparison I am unable to match the plant here figured with any known to me by specimen or description. It belongs to the section *Aizopsis*, and its nearest affinity is with the Spanish *D. cantabrica*, Willkomm (? *D. Dedeana*, Boiss. and Reut.), which differ in the yellow petals and elongate fruiting raceme. It also resembles very closely, in habit especially, the *Draba hispanica*, Boiss., a native of Spain and Algeria, but differs conspicuously in the white flowers, broad petals, flat pod, and very short style. It has also the habit, form of pod and style, and many of the characters of the *D. Zahlbruckneri*, Host, of the Eastern Alps; but that has small flowers and glabrous pods.

Draba Mawii is a native of Pancorbo in Old Castile, between Burgos and Miranda, where it was discovered by Mr. Maw in 1870, and introduced into his garden at Brosely and into the Royal Gardens of Kew. It flowered in the spring of 1873, and the fruit ripened for the first time in May, 1874. It is an excellent rock plant, of compact habits, bright green foliage, and red-brown buds, that are succeeded by crowded pearly flowers.

Descr. Forming low densely tufted bright green patches. *Stems* much branched, densely clothed with spreading rosulate leaves. *Leaves* $\frac{1}{4}$ to $\frac{1}{3}$ of an inch long, linear-oblong, obtuse, shining, margin pectinate, with rigid incurved or spreading

bristles, under-surface with a prominent mid-rib. *Scape* very short, woolly, 2 to 4 flowered, pedicels very short. *Flowers* $\frac{1}{3}$ of an inch in diameter. *Sepals* very concave, bristly at the back, green, tipped with red brown. *Petals* three times as large as the sepals, obovate-cuneate, retuse, spreading, quite white. *Stamens* about equalling the sepals. *Pods* on corymbs, $\frac{1}{4}$ of an inch long, ellipsoid, very compressed, about 8 seeded; valves flat, hispid; style very short indeed, stigma minute. *Seeds* oblong, with short funicles.

J. D. H.

Fig. 1, leaf; 2, flower; 3, the same with the petals removed; 4, ovary; 5, fruiting branches; 6, pods; 7, the same with one valve removed, showing the seeds: all but fig. 5 *magnified.*

TAB. 6187.

CROCUS BORYI.

Native of Greece.

Nat. Ord. IRIDACEÆ.—Tribe IXIEÆ.

Genus CROCUS, *Linn.*; (*Baker in Gard. Chron.*, 1873).

CROCUS *Boryi*; autumnalis, cormo ovoideo tunicis brunneis membranaceis deorsum laceris, spatha basali nullo, foliis 4-6 synanthiis angustissimis vittatis margine revolutis, spathæ propriæ valvis duobus lanceolatis, perianthii tubo luteo 1½-3-poll. longa limbi segmentis oblongo-spathulatis, obtusis 1-2 poll. longis lacteis sæpissime estriatis basi puberulis aurantiacis, antheris lacteis, filamentis luteis puberulis, styli ramis fulvis multifidis divaricatis.

C. Boryi, *J. Gay in Ferus. Bull*, xv. (1832), p. 220; *Baker, Gard. Chron.*, 1873, p. 1533.

C. Boryanus, *Herbert in Bot. Reg.*, 1847, tab. 16, fig, 10; *Journ. Hort. Soc.*, vol. ii., p. 291; *Klatt Linnæa*, vol. xxxiv., p. 685.

C. ionicus, *Herbert Bot. Reg.*, 1843; *Misc.*, p. 8.

This pretty autumn-flowering Crocus is common in many of the islands, and on the mainland of Greece. We have specimens at Kew from Corfu and Cephalonia, and from Mount Parnes and Mount Corydalus, in Attica. It was first brought into notice by the celebrated traveller and naturalist, Colonel Bory de Saint Vincent, after whom it was named by his friend Gay in 1832. He speaks of it as covering the mountains after the rainy season, from November to January, flowering with the Mandragora. There are several closely allied Grecian forms, as *C. lævigatus*, *Tournefortii*, and *Orphanidis*, of which we can scarcely judge whether they are species or varieties till they are watched side by side under cultivation. This one is characterised by it pure white unstriped flower with a yellow throat, and it is one of the few Crocuses that have white anthers. It has never yet been satisfactorily figured, and we are indebted for the opportunity of doing so now to Mr. Elwes, who brought it last spring from Syra, where it grows in company with *C. Crewei* (tab. 6168).

Descr. Autumnal, the leaves contemporary with the flower. Corm ovoid, middle-sized, the brown membranous tunics breaking up into small slices in the lower half. Leaves four to six, very narrow, with a distinct white midrib, and very revolute edges. Basal spathe absent. Proper spathe of two white lanceolate membranous valves. Perianth-tube yellow, much exserted from the spathe-valves. Perianth-limb usually about an inch deep, milk-white with a finely downy yellow throat, the segments blunt oblong, spathulate. *Stamens* about half as long as the limb, the milk-white anthers much longer than the short yellow filaments. *Stigmas* orange-red, overtopping the anthers with numerous divaricating capillary branches.—*J. G. Baker.*

Fig. 1.—Part of membranous tunic of corm; 2, stigmas; both *magnified*.

Tab. 6188.

WAHLENBERGIA Kitaibelii.

Native of Hungary.

Nat. Ord. Campanulaceæ.—Tribe Campanuleæ.

Genus Wahlenbergia, *Schrad.* (*Benth. & Hook. f., Gen. Plant.*, v. ii. p. 555, ined.).

Wahlenbergia *Kitaibelii*, caulibus decumbentibus foliisque anguste linearielongatis obtusiusculis pilosis, bracteis e basi ovato subulato-lanceolatis exterioribus recurvis floribus brevioribus, calycis tubo piloso, lobis ovatolanceolatis acuminatis pubescentibus sinubus denticulo interjecto, corolla pollicari.

W. Kitaibelii, *Alph. DC.*, *Monog. Camp.*, p. 131.

Campanula *graminifolia*, *Waldst. & Kitaib.*, *Pl. rar. Hung.*, v. ii. p. 166, t. 154.

Edraianthus Kitaibelii, *Alph. DC.*, *Prod.* v., vii. p. 449. *Reichb.*, *Ic. Fl. Germ.* v., xix. t. 1588.

The plant here figured for the first time in England (for indeed it has not been introduced before) is best known under the generic name of *Edraianthus*, a genus now merged in *Wahlenbergia*, from which it is not distinguished by any available character. From *Campanula*, which it so much resembles, it differs in the cells of the capsule dehiscing at the tip between the calyx-lobes, instead of on the outside at the base of the lobes. Several species of *Edraianthus* are described, all similar in habit, and all natives of South-eastern Europe. From all others this differs in the small tooth placed between the calyx-lobes, a character unfortunately not observed by our artist. *W. Kitaibelii* is a native of the Alps of Croatia, Transylvania, and the Banat, whence it was introduced by Messrs. Backhouse, who sent flowering specimens from York in May of the present year.

Descr. *Root* stout, spindle-shaped, perennial. *Stems* 4-6 inches long, spreading from the root, decumbent, and then ascending, slender, red brown, softly hairy, sparingly leafy. *Leaves* 2-3 inches long, chiefly radical, narrowly linear, about $\frac{1}{8}$ of an inch broad, subacute, sparingly softly hairy, the marginal hairs recurved; cauline similar, but rather shorter. *Heads* 4-6-, rarely 1-2-flowered; bracts shorter than the

flowers, green and subulate-lanceolate from a broad red-brown ovate base, quite entire, or slightly toothed, the outer recurved, all shorter than the flowers. *Flowers* sessile, about one inch long, erect. *Culyx-tube* hairy, conical, red brown; lobes green, ovate-lanceolate, acuminate, spreading, pubescent, and ciliate, with a small tooth in each sinus. *Corolla* violet blue, rather narrowly campanulate; tube 5-angled; lobes spreading and recurved, ovate, acute. *Filaments* very broad, ciliate; anthers twisted after the pollen has escaped. *Stigma* (or pollen-collecting portion of the style) elongate, cylindric; lobes 2, short, spreading.—*J. D. H.*

Fig. 1, leaf; 2, flower with the corolla removed, *magnified.*

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BOTANICAL MAGAZINE.

CONTENTS OF No. 369, SEPTEMBER, 1875.

Tab. 6184.—DION EDULE.

" 6185.—PRIMULA PARRYI.

" 6186.—DRABA MAWII.

" 6187.—CROCUS BORYI.

" 6188.—WAHLENBERGIA KITAIBELII.

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Tab. 6189.

DELPHINIUM Cashmirianum.

Native of the Himalaya Mountains.

Nat. Ord. Ranunculaceæ.—Tribe Helleboreæ.

Genus Delphinium, *Linn.* (*Benth. and Hook., f. Gen. Plant.*, vol. i., p. 9.)

Delphinium *Cashmirianum;* glabrum plus minus pilosum v. sericeo-pilosum, caule subsimplici erecto parce folioso, foliis radicalibus orbiculatis palmatim 5-7-lobis, lobis cuneato-ovatis acutis inciso-dentatis, caulinis 3-5-partitis, floribus laxe corymbosis, bracteis lanceolatis, bracteolis linearibus, floribus magnis azureis, sepalis oblongis obtusis, calcare paulo breviore conico robusto lente decurvo obtuso, petalis dorsalibus 2-lobis calcaribus elongatis, lateralibus oblique 2-lobis barbatis lobis obtusis.

D. Cashmirianum. *Royle, Ill. Bot. Himal.*, p. 55, t. 12. *Hook. f. et Thoms. Fl. Ind.*, p. 52, *excl. synon. D. Jacquemontianum. Hook., f. Fl. Brit. Ind.*, v. i. p. 26.

About a dozen species of *Delphinium* inhabit the Himalaya Mountains, of which the present is one of the handsomest. All are found at considerable elevations, and some of them that come from the loftiest spots, as *D. Brunonianum*, Royle (Tab. nost. 5461), exhale so strong a musky odour that the ignorant mountaineers attribute the odorous secretion of the musk-deer to the animals' feeding on that plant, and of the *D. glaciale*, which is equally strongly scented. No such odour has been attributable to *D. Cashmirianum*, though it too occurs at great heights, ascending from 12,000 to 15,000 feet in the Western Himalaya, where it ranges from the longitude of Kumaon to that of Kashmir, abounding in grassy valleys, &c.

The subject of this plate was raised by J. Anderson Henry, Esq., from seed sent from the north part of Kashmir by Dr. Bellew, during his journey to Kashgar with Mr. Forsyth, and it flowered well at Hay Lodge, Trinity, in July of the present year.

Descr. Whole plant except the inflorescence glabrous, but native specimens are glabrous, hairy, silky, or even almost hispid. *Stem* very simple, flexuous, one foot to one and a half foot high, slender, sparingly leafy. *Radical* leaves orbicular, two to three inches in diameter, palmately five- to seven-lobed, the lobes coarsely acutely toothed and cut; petiole

five to eight inches long; cauline leaves shortly petioled, three- to five-lobed, cut like the radical ones, all rather thick and bright green. *Inflorescence* corymbose, silkily hairy, the branches rather spreading, inclined, one or more flowered; bracts lanceolate, sub-erect, bracteoles linear. *Flowers* two inches long from the tip of the sepals to that of the spur, broad, deep azure blue, silkily pubescent; lateral sepals broadly oblong, obtuse; dorsal produced into a broad, inflated, conical, decurved, obtuse spur about two-thirds as long as the sepal. *Dorsal petals* almost black, the limb erect, two lobed, the spurs funnel-shaped with decurved tips; lateral petals greenish, their limb deflexed, unequally two-lobed, with prominent hairs on the face. *Ripe carpels* hairy.—*J. D. H.*

Fig. 1.—Petals *magnified.*

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Tab. 6190.

MASDEVALLIA Davisii.

Native of Peru.

Nat. Ord. Orchideæ.—Tribe Pleurothallideæ.

Genus Masdevallia, *Ruiz and Pav.* (*Lindl., Gen. and Sp. Orchid.*, p. 192).

Masdevallia *Davisii*; foliis 8-pollicaribus anguste lineari-oblanceolatis subacutis carinatis crasse coriaceis, scapis gracilibus foliis longioribus, floribus horizontalibus aureis, ovario brevi, sepalis in tubum subcylindraceum basi gibbum connatis breviter caudatis, supremo minore ovato in caudem æquilongam attenuato marginibus recurvis, lateralibus maximis 2½ poll. longis, fere parallelis in caudas ¼ poll. longas abrupte angustatis sinu angusto, petalis dimidiato-oblongis apice obtusis emarginatis basi antice auriculatis, labello lineari-oblongo obtuso 3-carinato, columna apice erosa:

M. Davisii, *Reichb. f. Xen. Orchid.*, v. 3, t. 3, *ined.*, *et in Gard. Chron.*, 1874, pp. 710, 711.

This fine *Masdevallia* is remarkable for its size and colour. It was discovered by Mr. W. Davis near Cuzco in Peru, and was flowered by Messrs. Veitch in August of the present year; the plant here figured bearing twenty flowers. Singular as the colour is, it is probably very variable. Reichenbach describes the perianth-tube as "whitish yellow, with a blackish-violet great eye-spot on each side;" and the other parts of the flower as "yellowish white outside and of the deepest splendid orange inside;" colours not at all repeated in our specimen.

Descr. *Leaves* six to eight inches long exclusive of the short part below the joint, two-thirds of an inch broad, narrowly oblanceolate, obtuse, keeled, concave above, dark green, thick, and coriaceous; sheaths one inch long, pale, loose. *Scapes* slender, longer than the leaves. *Flower* nearly horizontal, four inches long from the tip of the upper to that of the lateral sepals, one and a half inch broad across the lateral sepals, pale golden yellow, with obscure small orange markings at the base of the perianth externally. *Ovary* very short, curved, grooved, green. *Sepals* combined at the base into a subcylindrical tube two-thirds of an inch long, which is gibbous at the base; upper two inches long, ascending, broadly ovate, margins recurved, gradually contracted into a

slender tail as long as itself; lateral two and a half inches long, nearly parallel, connate to beyond the middle, with an acute sinus, oblong, rather convex, suddenly contracted into a tail about a quarter of an inch long. *Petals* very small, dimidiate-oblong, with broad claws, auricled at the base on one side; tip almost truncate, notched. *Lip* shorter than the petals; claw slender; limb linear-oblong, obtuse, with three longitudinal stout ridges running through its length. *Column* not winged, apex toothed.—*J. D. H.*

Fig. 1.—Flower with perianth removed; 2, column and claw of lip; 3, column and lip; 4, limb of lip:—*all magnified.*

Tab. 6191.

TULIPA Eichleri.

Native of Georgia.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.

Genus Tulipa, *Linn.* (*Baker in Journ. Linn. Soc.*, vol. xiv. p. 275).

Tulipa *Eichleri*; bulbo ovoideo glabro tunicis fuscis brevibus apice intus strigoso-pilosis, caule elongato unifloro sub lente dense puberulo foliis 3-5 lanceolatis glauco-viridibus superne minutissime puberulis marginibus planis levibus, scapo gracili, perianthio aperte campanulato 3-4 poll. diam., segmentis omnibus conformibus obovatis cuspidatis sanguineo-coccineis basi macula magna violacea flavo-maculata, staminibus perianthio dimidio brevioribus, antheris purpureo-brunneis filamenta nigra æquantibus, ovario obtuse 3-gono staminibus paulo breviore, stigmatis sessilis ramis crassis horizontalibus undulatis.

T. Eichleri, *Regel. Gartenfl.*, v. 23 (1874), n. 193, t. 799. *Baker, in Gard. Chron.*, 1875, p. 620.

When figuring the no less gorgeous *Tulipa Greigi* for this volume (Tab. 6177), allusion was made to three striking new Tulips, which, "though coming from different localities, resembled one another very closely in both a botanical and horticultural point of view." We have here the second of these, which is the latest discovered of them, not being included in Mr. Baker's careful monograph of the genus published only a year ago. It belongs to the group *Scabriscapæ* of Baker, all the species of which are natives of the Mediterranean region, from Italy eastward to the Levant, and of the Caspian region extending to Turkestan. This indeed is the principal area inhabited by *Tulipa*, for very few of its species (nearly fifty are described) reach the extreme east of Asia; only one is found in India (*T. stellata*, Hook.), and that is confined to the North-eastern Himalayas, and one (*T. edulis*, Baker) in Japan. The *T. Eichleri* was discovered by the traveller, whose name it bears, in the Baker district of Georgia.

I am indebted to Mr. Elwes for the fine flowering specimen of *T. Eichleri*, which flowered in his rich collection last spring, and also for a bulb which he has presented to the Royal Gardens.

Descr. *Bulb* in our specimen small, ovoid, hardly two

inches long, covered with a brown, smooth tissue, which is bristly on the inner surface towards the tip. *Stem* six inches high, leafy, stout, one-flowered, pubescent. *Leaves* alternate, lower twelve to fifteen inches long by two broad, upper smaller, sessile, lanceolate, acuminate, glaucous green, minutely pubescent above, margins plane and smooth. *Scape* slender. *Flower* three inches in diameter, broadly companulate; perianth-segments obovate, rounded at the top with a mucro, deep scarlet, with a broad, wedge-shaped, dark violet-blue spot at the base, which is margined with yellow. *Stamens* less than half the length of the perianth-segments; anthers violet-brown, as long as the black filaments. *Ovary* trigonous; stigmas horizontal, with recurved tips, very thick, undulated, pale yellow.—*J. D. H.*

W Fitch del et Lith

Vincent Brooks Day Son Imp

Tab. 6192.

HETERANTHERA limosa.

Native of America.

Nat. Ord. Pontederiaceæ.

Genus Heteranthera, *Ruiz and Pav.* (*Seubert in Mart. Flor. Bras. Ponted.*, p. 87.)

Heteranthera *limosa*, cæspitosa, subacaulis, glaberrima, foliis longe petiolatis ovatis v. oblongo- v. rotundato-ovatis obtusis striato-venosis, petiolo crasso articulato fistuloso, pedunculis sessilibus petiolis multo brevioribus unifloris, spatha angusta subulato-acuminata, perianthii tubo angusto-pollicari, limbi fere æqualis $1\frac{1}{2}$ poll. diam. cærulei lobis lineari-oblongis obtusis, staminibus subæqualibus, filamentis antheras lineari-oblongas subæquilongis, stigmate clavato oblique truncato apice crenato.

H. limosa, *Vahl, Enum.* v. 2, p. 44. *Pursh. Fl. N. Am.*, v. 1, p. 32. *Benth. Pl. Hartweg*, p. 25. *Griseb. Fl. Brit. Ind.*, p. 590. *A. Gray, Bot. N. U. States*, ed. 2, p. 485. *Seubert in Mart. Flor. Bras.*, vol. 3, part 1, p. 89.

H. alismoides, *Humb. et Bonpl. ex Link, Jahrb.*, v. 3, p. 73.

Leptanthus ovalis, *Mich. Fl. Bor. Am.*, v. 1, p. 25, t. 5.

Pontederia limosa, *Swartz, Prod.* p. 37, *Fl. Ind. Occ.*, v. 1, p. 611. *Sloane, Hist. Jam.*, 1, t. 149, f. 1.

A very pretty water-plant of wide distribution, inhabiting very wet marshes from Virginia to Venezuela and Brazil, and likely to become a favourite for cultivation in tropical aquaria, where it may be grown in pots standing in the water. As far as I am aware, but one species of the genus *Heteranthera* had hitherto been cultivated in Europe, namely the *H. graminea* of Vahl, a very insignificant submerged species, a native of North America, which was introduced into the Glasgow Botanical Garden half a century ago, along with *Vallisnerea spiralis*, and is well figured in Hooker's "Exotic Flora," tab. 94, under the generic name of *Leptanthus*. About a dozen species of the genus are described, some of which, having spikes of blue flowers, are no doubt worthy of cultivation.

Seeds of *H. limosa* were sent from Santa Martha, in New Grenada, to the Royal Gardens by M. Endres, which germinated and flowered in the short space of a few weeks. M. Endres states that it grew in brackish pools. It flowers at Kew from May onwards. It is a plant of very wide range,

from the warm temperate region of the United States (Illinois and Virginia) to Bahia in Brazil.

Descr. Quite glabrous, tufted, stemless. *Leaves* erect, long-petioled, one to two inches long, from orbicular-ovate to almost lanceolate, obtuse, pale bright green on both surfaces, striated with numerous veins; petiole six to ten inches long, stout, cylindric, transparent, transversely jointed, fistular. *Peduncle* one-half to one inch long, 1-flowered, apparently springing from the side of a petiole towards its base, but in reality from a short branch that gives off a leaf and a peduncle, which latter is embraced at the base by the sheath of the petiole of the leaf. *Spathe* green, embracing the tube of the flower, subulate-acuminate. *Perianth-tube* slender, one to one and a half inch long; limb as much in diameter, bright violet blue; segments linear-oblong, obtuse. *Filaments* nearly equal, subulate, about equalling the linear-oblong anthers. *Ovary* narrow; stigma clavate, obliquely truncate, crenate at the top.—*J. D. H.*

Fig. 1.—Perianth-tube and stamens; 2, upper part of perianth-tube laid open, with stamens and stigma; 3, ovary; 4, transverse section of ditto:—*all magnified.*

W Fitch del et Lith

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Tab. 6193.

OXALIS arenaria.

Native of Chili.

Nat. Ord. Oxalideæ.

Genus Oxalis, *Linn.; Benth and Hook., f. Gen. Pl.*, v. i., p. 276.

Oxalis *arenaria*; acaulis, glaberrima, rhizomate tuberoso, foliis 3-4-foliolatis foliolis sessilibus bilobo-obcordatis subtus glaucis, scapo gracilliuo petiolis multoties longiore, umbellis 3-10-floris, bracteis minutis ovato-subulatis recurvis, pedicellis gracilibus, sepalis oblongo-lanceolatis obtusis dorso apices versus 2-glandulosis, petalis sepalis triplo longioribus cuneato-obcordatis purpureis, filamentis puberulis in cupulam turbinatam basi connatis, ovario oblongo-ovoideo, stylis brevibus.

O. arenaria, *Bertero et Colla, Plant. rar Chil.*, p. 10, t. 3; *Walp. Rep.*, i., 485; *C. Gay, Flor. Chil.*, v. i., p. 454.

The genus *Oxalis*, once a favourite amongst amateur horticulturists, has of late years experienced the neglect that has overtaken so many interesting classes of herbaceous plants. Upwards of one hundred and thirty species, chiefly natives of South Africa, have been figured as under cultivation in Europe. By far the larger number of these are contained in the beautiful Monograph of the genus published by the elder Jacquin in 1794, from specimens cultivated in the Imperial Gardens at Vienna. In 1808 fifty-eight species were in the Kew collection, where there are now only thirty; and no species has been figured in this Magazine for a quarter of a century, when (1850) the lovely *O. elegans* of the Andes, Tab. 4490, appeared. Happily a love of the genus lingers amongst scientific horticulturists, to one of whom, G. Munby, Esq., I owe the opportunity of figuring the present species.

Oxalis arenaria is a native of Chili, where it is widely distributed, being found in sandy pastures near Valparaiso, Santiago, and other localities. It has also been gathered on the Andes of Bolivia, by Mandon, in the neighbourhood of Sorata, at an elevation of between eight and nine thousand feet above the sea-level. The specimen here figured flowered with Mr. Munby in March.

Descr. Quite glabrous. *Rhizome* of fleshy scales forming

together an ovoid tuber as large as a hazel-nut. *Leaves* all radical, three- to four-foliolate; petiole very slender; leaflets sessile, one-third to nearly an inch long, obcordate, with broad rounded lobes, and an open sinus, pale bright-green above, glaucous beneath. *Scapes* twice as long as the petioles or more, very slender. *Umbel* three- to ten-flowered; involucral bracts very small, green, ovate-subulate or lanceolate, recurved; pedicels one to two inches long. *Flowers* one to one and a quarter inch in diameter, bright violet-purple. *Sepals* oblong-lanceolate, obtuse, green, with a double gland near the tip on the back. *Petals* much longer than the sepals, cuneate-obcordate, with a shallow sinus. *Stamens* united into a turbinate cup at the base. *Ovary* ovoid-oblong; styles short.—*J. D. H.*

Fig. 1. Flower with the perianth removed; 2, ovary:—*both magnified.*

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Tab. 6194.

CRASSULA Bolusii.

Native of South Africa.

Nat. Ord. Crassulaceæ.

Genus Crassula, *Linn.* (*Benth. and Hook., f. Gen. Pl.*, v. i., p. 657).

Crassula (Squamulosæ) *Bolusii;* parvula, diffuse ramosa, ramis gracilibus laxe foliosis adscendentibus teretibus sparse patentibus pilosis apice floriferis, foliis $\frac{1}{3}$ poll. longis patulis elliptico-lanceolatis acutis marginibus ciliatis ceterum glaberrimis radicalibus pollicaribus lineari-spathulatis omnibus carnosis dorso semiteretibus facie convexis viridibus nigro maculatis v. fasicatis, floribus corymbosis $\frac{1}{6}$ unc. diameter. breviter pedicillatis, calycis segmentis ovatis acutis ciliatis, petalis oblongis subacutis dorso infra apicem mucronulatis carneis, glandulis hypogynis brevibus emarginatis, carpellis ovoideo-lanceolatis in stylos breves attenuatis, stigmatibus punctiformibus.

A very pretty little Cape succulent, apparently not included in Harvey and Sonder's Cape Flora. It was discovered by Mr. H. Bolus, near Graafreinet, who sent both living and dried specimens to Kew. As a species it is closely allied to *C. Cooperi* (Regel Gartenfl., 1874, p. 36, t. 786), a widely distributed Cape species, but differs in the less straggling habit, much longer and narrower radical leaves, and in the dark blotches on the foliage.

The specimen here figured is from plants sent to Kew by Mr. Bolus in 1874, which flowered in the Succulent House in July of the present year.

Descr. A small, bright green, tufted, perennial herb. *Stems* ascending, three to five inches high, slender, leafy at the base, sparingly so higher up, very sparsely clothed with spreading short white hairs. *Leaves* fleshy, pale green, with dark, almost black blotches, one-third to one-half inch long, elliptic-lanceolate, acute, the lowest often one inch long, and more or less spathulately oblanceolate, upper surface convex, the lower almost semiterete, margin with a row of white rather recurved cilia, otherwise perfectly glabrous. *Flowers* very small, one-sixth inch diameter, in terminal corymbose cymes, very shortly pedicelled. *Calyx-segments* ovate, acute, red, ciliate. *Petals* twice as long, oblong-lanceolate, acute, with a dorsal mucro near the top, pale

flesh-colour. *Anthers* red. *Hypogynous glands* small, yellow, notched. *Ovaries* ovoid-lanceolate, narrowed into very short straight styles with minute stigmatic tips.—*J. D. H.*

Fig. 1. Portion of branch and part of leaves; 2, flowers; 3, petal; 4, stamens, glands, and carpels; 5, carpels and glands:—*all magnified.*

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CONTENTS OF No. 370, OCTOBER, 1875.

TAB. 6189.—DELPHINIUM CASHMIRIANUM.
„ 6190.—MASDEVALLIA DAVISII.
„ 6191.—TULIPA EICHLERI.
„ 6192.—HETERANTHERA LIMOSA.
„ 6193.—OXALIS ARENARIA.
„ 6194.—CRASSULA BOLUSII.

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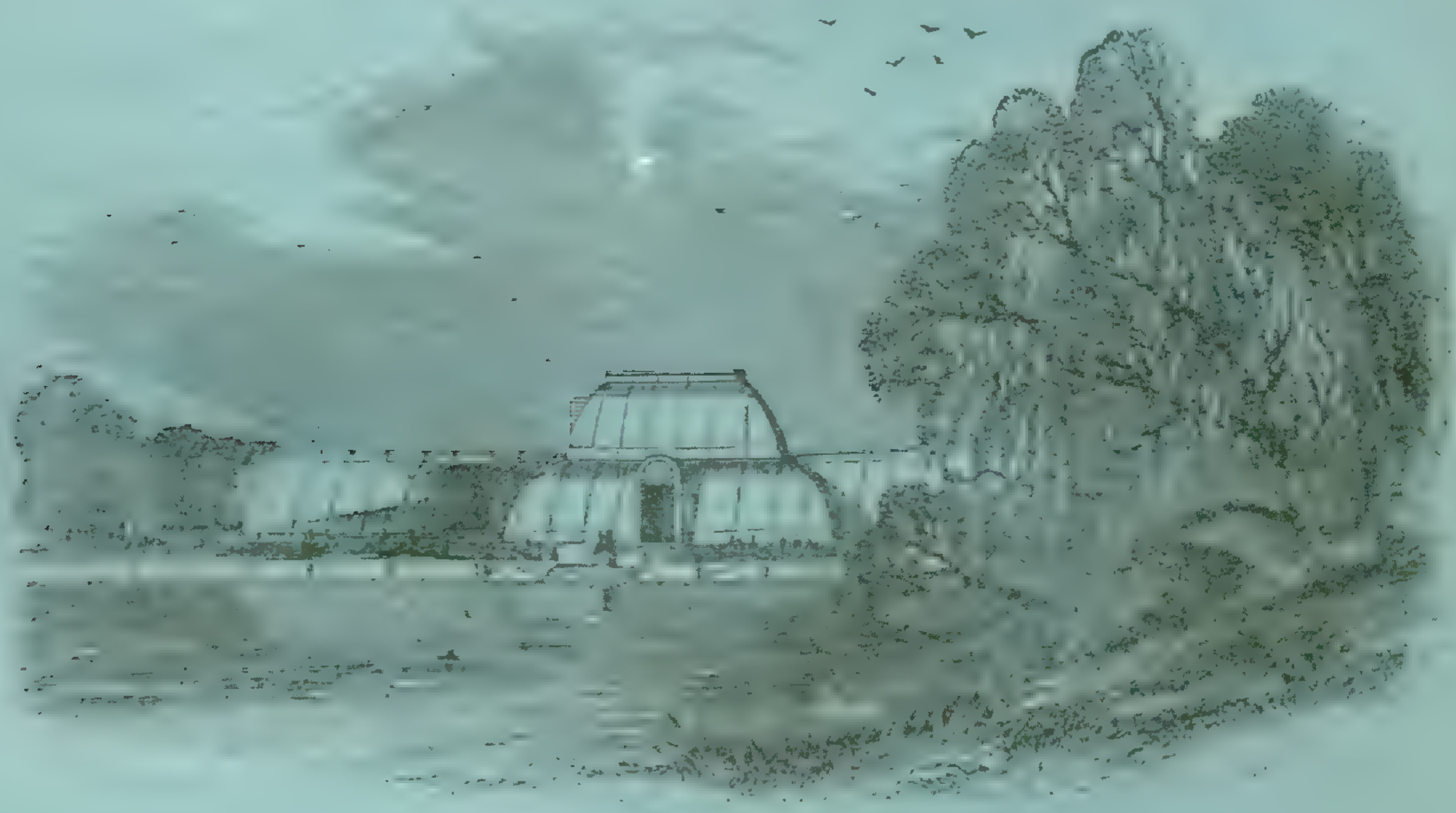

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Tab. 6195.

PROTEINOPHALLUS Rivieri.

Native of Cochin-China.

Nat. Ord. Aroideæ.—Tribe Pythonieæ.

Nov. gen. Proteinophallus.—*Spatha* basi convoluta; lamina ampla cordato-orbiculari acuta explanata ad 20-costata, marginibus recurvis. *Spadix* spatham longe superans, inferne continuo-androgynus organibus neutris 0; appendice elongato fusiformi subulato, sensim acuminato. Antheræ confertæ, filamento crasso æquilatæ, 2-loculares, 2-porosæ. Ovaria numerosa, dense conferta, globosa, 2-3-locularia; stylus brevis, columnaris, stigmate capitato 3-lobo; ovula in loculis solitaria, angulo interiori prope bari adnata, anatropa.

Herba *elata, Cochinchinensis, radice magno tuberoso.* Folium *serotinum, longe crasse petiolatum, lamina amplissema, trisecta, segmentis bipinnatifidis.* Scapus *elongatus, strictus, gracilis.* Spathæ *tubus ovoideus; lamina* $1\frac{1}{2}$ *ped. diametro, saturate luride purpurea, nervis impressis, nervulis transversis junctis.* Organa *mascula cum femineis continua. Spadicis appendix pedalis et ultra, basi lobulatus, luride purpureus, lente curvus.*

Proteinophallus Rivieri, *Hook f.*

Amorphophallus Rivieri, *Durieu in Rev. Hortic.*, 1870, p. 573; 1872, p. 19; 1873, pp. 305 et 344. *Gard Chron.*, 1873, p. 610, cum Ic. xylog.

A. palmæformis, *Riv. MSS.*

To Mr. Bull belongs the credit of importing and first flowering in England the two most gigantic and singular herbaceous Aroids known to us of late years, namely, the *Godwinia gigas* (Tab. nost. 6048) and the subject of the present plate. The latter plant, though hitherto figured only by an uncoloured but excellent woodcut in the *Gardener's Chronicle*, is already well known to horticulturists as a hardy plant, suited to open-air cultivation even in England—a fact strangely inconsistent (if Nature can be inconsistent) with that of its native climate being the eminently hot and humid one of Cochin-China, whence it was introduced into Europe by M. Rivière, jardinier-en-chef of the Luxemburg Palace Garden in Paris.

I have been led, after careful consideration of the structure of this plant, to reject it from *Amorphophallus*, a genus with which I was well acquainted in India, and from which, except in the form of the leaf, it differs greatly in habit, as it does in certain floral characters. In *Amorphophallus* proper the spathe is almost sessile, expanded almost from the base into an irregularly-plaited, funnel-shaped limb, with a lobed lip all round; the spadix is very short, with a deformed appendix (whence the generic name); the style is very long and slender, and the ovules have longer funicles. Schott, indeed, in his "Synopsis Aroidearum," would have excluded the present plant from the subtribe *Amorphopallideæ*, which he charac-

terises by the spathe not being convolute below, and by the ovules having long funicles, and would have included it under that of *Hydrosmineæ* (an African group), with the spathe convolute and tubular below, and the ovules attached by a broad base. My impression is, however, that these subtribes are not distinguishable as such. I have only further to advert to the remarkable uniformity of leaf-structure in these gigantic Aroids, that of *Proteinophallus* being not only characteristic of the tribe *Pythonieæ*, but occurring amongst the *Dracontieæ* in *Godwinia*, a genus as far removed as possible from the *Amorphophalli*.

Descr. *Root* three to twelve inches in diameter, often weighing several pounds. *Petiole* eighteen inches high, as thick as the finger, cylindric, mottled with brown; blade of leaf dark green, two feet in diameter; 3-partite, the three principal divisions shortly stalked, deltoid, deeply pinnatifid; segments spreading, oblong, again pinnatifid; ultimate lobes ovate, acuminate, convex, with a single costa and spreading lateral veins. *Flowering-stem* produced before the leaf, nearly three feet high and upwards of one inch in diameter, cylindric, strict, very dark brownish-green, clothed at the very base with loose erect spathes that are pale and mottled with greenish-brown. *Spathe* with a convolute tube six inches long and three in diameter, limb nearly horizontal, orbicular, acuminate, four feet in circumference, about 15-nerved, the nerves deeply sunk and united by transverse venules; convolute portion contracted at the top, pale green with very dark green spots and purple edges; limb of spathe dark vinous purple, with a green lustre; margins recurved, involute, and as it were auricled at their meeting above the tube. *Spadix* almost twice as long as the spathe; female portion two inches long and one and a quarter in diameter, cylindric, densely clothed with greenish-purple ovaries; male portion contiguous, three inches long, densely clothed with vertically elongate anthers; appendix fifteen inches long; cylindric, gradually tapering from the lobulate base to the acute tip, irregularly marked with longitudinal depressions of the same colour as the spathe. *Anthers* sessile, 2-celled, with two pores vertically placed. *Ovary* globose, 2-3-celled; style short but distinct, stigma capitate 2-3-lobed; ovules one in each cell, anatropous, attached to the placenta towards its base by a broad face.—*J. D. H.*

Fig. 1, Root and leaf; 2, flowering stem, both one quarter *the natural size*; 3, inflorescence one half the *natural size*; 4, female part of spadix of the *natural size*; 5, stamens; 6, ovary; 7, verticæ; 8 and 9, transverse sections of ditto, *magnified*.

3

6

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Tab. 6196.

FERULA (EURYANGIUM) Sumbul.

Native of Turkestan.

Nat. Ord. Umbelliferæ.—Tribe Peucedaneæ.

Genus Ferula, *Linn.* (*Benth. et Hook. f., Gen. Plant*, vol. i., p. 917).

Ferula (Euryangium) *Sumbul*; elata, glauca, glabriuscula, caule stricto solido, foliis radicalibus patulis rigidis pro planta parvis minute sparse puberulis ambitu triangulari-deltoideis 3-pinnatim sectis, petiolo robusto lamina breviore, vagina brevi, rachibus pinnarum basi incrassatis, pinnulis polli-caribus cuneato-obovatis margine inferiore decurrente apices versus crenato-lobulatis subpinnatifidisve pallide viridibus glaucisque, inflorescentiæ elon-gatæ angustæ ramis sparsis gracilibus alternis erecto-patentibus, umbellis secus ramos alternis superioribusve oppositis crassiuscule pedunculatis, bracteis ad basin ramorum et umbellarum ovato-v.-oblongo-lanceolatis flavis membranaceis, umbellis 1-2 poll. diametro, exinvolu cratis, radiis 7-10, umbellulis ad 20 floris radiis brevissimis, floribus parvis confertis flavis, calyce obsoleto, petalis incurvis ovato-acuminatis, vittis 4 dorsalibus (in carpellis immaturis) in valleculis solitariis maximis, 2 commissuralibus parvis.

Euryangium Sumbul, *Kauffmann in Nov. Mem. Soc. Hist. Nat. Mosc.*, v. xii. (1871), p. 253, t. 24, 25; *Flückiger et Hanbury, Pharmacop.*, p. 278.

Two roots of this fetid drug were received at Kew from the Director of the Imperial Garden at Moscow in 1872, of which one rotted, and the other, planted in the Herbaceous ground amongst stones, and sheltered in winter, threw up leaves in the first year, and in the second leaves and a flowering stem nine feet high, from which materials the accompanying plate was made in July last, after which the whole plant died.

Unfortunately, owing to the wetness of the season, the flowers, which were copiously impregnated by bees, yielded no ripe fruit, though the carpels continued to swell for several days amid cloud and rain. The plant is a native of Turkestan, where it inhabits mountains east of Samarkand, at an elevation of 3000-4000 feet. It was there discovered by the celebrated traveller Fedschenko in 1869, who sent roots to Moscow in 1871.

According to Flückiger and Hanbury's admirable work quoted above, the Sumbul plant here described—which is remarkable for the fetid, musky, and milky juice of its root—was introduced into Russia in 1835 as a substitute for musk and a remedy for cholera; thence it reached Germany in 1840 and England in 1850, where it was admitted into the Pharmacopœia in 1867. In commerce the root is imported in transverse slices one to five inches in diameter, with a dry

papery bark, resinous inner surface, and spongy farinaceous central portion, which has a musky odour and bitter aromatic taste. To us the odour of the root, whether fresh or dry, is detestable, resembling putrid musk, and it is very penetrating and durable. Another kind of Sumbul is alluded to by the same authors as Indian Sumbul, it is described in Pereira's "Elements of Materia Medica"; and a third has been imported into England from China. Both these are of unknown origin.

As a genus I cannot regard *Euryangium* as separable from *Ferula*, with which it agrees in habit, inflorescence, foliage, flowers, and form of fruit; it differs in the great size of the solitary vittæ. The vittæ are, however, a most inconstant character in *Ferula*, varying even in the same species; and if *Narthex* is included in it, so must also be *Euryangium*, as a section at the most.

Descr. *Root* fusiform, a foot long, crowned with a tuft of the bristly remains of old leaves, spongy within, and full of fetid milk. *Leaves* puberulous, all radical, petioled; petiole a foot long; blade three feet in diameter, deltoid in outline, 3-pinnatifid, pale green, rachis of primary and secondary segments terete, swollen at the base; ultimate pinnæ laxly pinnatifid, segments rhomboid-cuneate, obtusely crenate and cut at the apex, pale green, glaucous beneath, nerves flabellate. *Stems* trict, erect, solid above, nine feet high, terete, obscurely striate, one inch in diameter at the base, bearing a few scattered subsessile imperfect leaves. *Inflorescence* sparse, elongate, oblong in outline; branches erecto-patent, alternate, bearing alternate or rarely opposite compound umbels one and a half to two and a half inches in diameter; rachis and branches green; bracts at the axils linear-oblong, membranous, subacute, yellow. *Umbels* of six to eight rays. *Involucre* none. *Partial umbels* one-quarter to one-half inch in diameter, peduncles one-half to three-quarters of an inch long. *Flowers* one-sixth of an inch in diameter, crowded, very shortly pedicelled, outer hermaphrodite, inner smaller. *Calyx-teeth* very obscure. *Petals* triangular-lanceolate, yellow, incurved. *Stamens* seated around a disk, filaments short, incurved *Anthers* yellow. *Disk* cup-shaped, fleshy, with waved, almost sinuate margins. *Stylopods* small, sunk in the disk; styles very short, recurved, obtuse. *Ovary* with five very large vittæ between the dorsal ridges, and two small commissural ones.—*J. D. H.*

Fig. 1, Whole plant, much reduced; 2, portion of leaf; 3, inflorescence of the natural size; 4,

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Tab. 6197.

CROCUS VELUCHENSIS.

Native of Greece and Transylvania.

Nat. Ord. Irideæ.—Tribe Ixieæ.

Genus Crocus, *Tourn.* (*Baker in Gard. Chron.*, 1873).

Crocus *veluchensis*; vernalis, cormo globoso tunicis fibrosis subtiliter reticulatis, spatha basali nulla, foliis 3-6 synanthiis anguste linearibus albo-vittatis, spatha propria bivalvi, perianthii tubo limbum duplo superante, fauce concolore pilosulo, segmentis 1-1½ poll. longis obtusis violaceis sæpe apice albo maculatis, antheris luteis filamentos albos superantibus vel æquilongis, stigmate aurantiaco ramis tribus clavato-petaloideis subintegris.

Crocus veluchensis, *Herbert in Bot. Reg.*, v. 31, Misc., p. 72; *Bot. Reg.*, v. 33, tab. 4, fig. 4.; *Journ. Hort. Soc.*, New Series, v. 2., p. 274; *Schur Fl. Transyl.*, p. 652.
C. thessalus, *Boiss. et Sprun.*, *Diag. Pl. Orient.*, No. 13, p. 17.
C. exiguus, *Schur Fl. Transyl.*, p. 652.

Very near *Crocus Sieberi* (Tab. nost. 6036), from which it mainly differs by the throat of the perianth being concolorous instead of bright yellow. It was discovered by Signor Vrioni whilst collecting for the late Dean Herbert on Mount Veluchi (Tymphrestus), near the northern border of Greece (not the Morea, as inadvertently stated by Herbert in his final monograph of the genus in the Journal of the Horticultural Society), and has since been found on the Parnassus range, and in the mountains of Thessaly, Thrace, and Transylvania. The abrupt white tip to the otherwise purple perianth-segments, shown in the plant drawn in the Botanical Register, is not a specific character. We have lately received from Colonel Trevor Clarke a flower of *C. vernus* with perfectly similar coloration.

C. veluchensis is still a very rare plant in cultivation. The plate was drawn from specimens sent by the Rev. H. Harpur Crewe, who received it from Herr Leichtlin. It flowers in spring at the same time as *vernus* and *Sieberi*.

Descr. *Corms* very small, globose, the outer tunics made up of finely-reticulated fibres, like those of *C. vernus* and *Sieberi*. *Basal spathe* absent. *Leaves* three to six, produced at the same time as the flowers, narrow linear, with

a distinct white costal band. *Proper spathe* of two linear valves, which reach to the top of the tube. *Perianth-tube* two to three inches long, violet on the outside; throat concolorous, finely pilose; limb one to one and a half inch deep, the divisions oblong-spathulate, obtuse, deep violet pale violet or white, without any distinct striping. *Stamens* reaching more than halfway up the limb. *Anthers* lemon-yellow, equalling or exceeding the pilose white filaments. *Stigma* orange-yellow, overtopping the anthers, the three clavate-petaloid forks only fringed at the tips.—*J. G. Baker.*

Fig. 1, Fibres of tunic; 2, stigmas:—*both magnified.*

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Tab. 6198.

CARICA candamarcensis.

Native of the Andes of Ecuador.

Nat. Ord. Passifloreæ.—Tribe Papayaceæ.

Genus Carica, *Linn.* (*Benth. et Hook. f., Gen. Plant.*, v. i., p. 815).

Carica candamarcencis; caule gracile stricto, foliis longe petiolatis subtus petioloque molliter pubescenti-tomentellis ambitu orbiculatis profunde cordatis sinu basi rotundato ad medium fere 5-lobis, lobis latis 3-lobulatis, lobulis ovatis oblongisve acuminatis, lobis basalibus extus auriculato-lobulatis, superne glabris saturate viridibus nervis tomentellis venulis impressis, subtus pallidis nervis validis prominentibus, corymbis axillaribus breviter pedunculatis floribus monoicis terminali sæpius fœminea ceteris masculis, omnibus brevissime pedicellatis, calycis lobis triangulari-subulatis, corollæ viridis tubo ⅓ pollicari, lobis linearibus revolutis, staminibus fauce tubi insertis biseriatis, filamentis crassis brevibus, antherarum loculis connectivo incrassato apice abrupte subulato adnatis, fructibus oblongo-obovoideis 5-locularibus apiculatis basi constrictis obscure et obtuse 5-gonis inter angulos depressis.

C. candamarcensis, *Hort. Belg.*

The graceful little tree here described was raised from seeds sent from the Ecuadorian Andes by the late Professor Jameson, of Quito, to the late Mr. Hanbury, with whom it flowered in an open border at Clapham in 1874. A specimen received from him again both flowered and fruited abundantly at Kew during the past summer and autumn, in the open air, where it was stood out after being brought into bud in a greenhouse. According to Mr. Hanbury this is the species mentioned by Mr. Spruce in his and M. de Mello's very learned and interesting paper on the Papayaceæ, published in the Journal of the Linnean Society quoted above, as the Chambúru, or common Carica, of the Ecuadorian Andes, where it is cultivated up to an elevation of 9000 feet for the sake of its edible fruit. Mr. Spruce adds that when he visited the mountain of Tunguragua in February, 1858, the ground was strewed with its ripe and rotting fruits, which were smaller and sweeter than that of the common Papaw, and were the favourite food of the bears that infest the forests of that mountain. The trunk he describes as being as stout as that of the common Papaw, and the leaves even larger; the fruits as being 8-9 inches long, and sometimes nearly as broad; the flesh white (not yellow, as the common Papaw), soft, and with a pleasant flavour, being sometimes very acid in cool sites.

It will be seen from our drawing and description that, as might be expected, the trunk is smaller with us than in Ecuador.

November 1st, 1875.

as also that the flesh is not white within, but yellow. I can vouch for the delicious scent and grateful taste of the fruit, in both which qualities it widely differs from the common Papaw, which is not, in my opinion, worth cultivating for the dessert-table, while this is so decidedly; it, moreover, makes a much handsomer greenhouse plant than the Papaw.

According to De Mello and Spruce, thirty-three or thirty-five species of *Carica* (including *Vasconcellæ*) are known to them, of which upwards of twenty are Andean, and the rest natives of other parts of tropical America.

The name Chambúru is, according to Mr. Spruce, applied to all the larger-fruited Andean species. I have found no authority for that of *candamarcensis*, under which specimens have been received from Belgian nurseries.

Descr. *Stem* in our plants eight feet high, as thick at the base as the fore-arm, strict, erect, tapering upwards, tomentose at the top. *Leaves* numerous, subterminal, spreading, dark green above, pale beneath; petiole one to one and a half feet long, strict, terete, horizontal, and as well as the blade beneath and its nerves above densely clothed with fine, soft, pale pubescence; blade one and a half foot in diameter, nearly circular in outline, 5-lobed to the middle, with the terminal lobe slightly produced, deeply cordate at the base, where the sinus is rounded at the petiole, but usually closed at a distance from it by the overlapping lobules of the two basal lobes; lobes palmately spreading, pinnatifid, 3-5-lobulate, the ultimate divisions spreading, broadly oblong, suddenly acuminate, entire or with an acute lobule or tooth on one or both sides; upper surface glabrous, shining, with yellowish ribs and nerves, and sunk venules; lower surface with very stout prominent ribs, nerves, and venules. *Flowers* green, pubescent, in very shortly peduncled axillary corymbs, almost sessile on the peduncle. *Calyx-lobes* minute, subulate. *Corolla-tube* one-third of an inch long, terete; lobes linear, revolute. *Stamens* in two series at the mouth of the tube; anther-cells linear, adnate to the face of the short thickened filaments; connective with an incurved subulate point. *Fruit* three inches long and upwards, oblong-obovoid, apiculate, somewhat contracted at the base, obscure; 5-angled, with hollowed sides between the angles, bright golden yellow, very fragrant and sweet, 5-celled. *Seeds* a quarter of an inch long, aril transparent.

Fig. 1, Reduced plant; 2, inflorescence; 3, flower laid open; 4, two stamens; 5, calyx and rudimentary ovary; 6, fruit; 7 and 8, seeds with aril:—*all but figs. 2 and 6 magnified.*

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TAB. 6199.

DENDROBIUM AMŒNUM.

Native of Nipal and Sikkim.

Nat. Ord. ORCHIDEÆ.—Tribe DENDROBIEÆ.

Genus DENDROBIUM, *Swartz* (*Lindl., Gen. et Sp. Orchid.*, p. 74).

DENDROBIUM *amœnum;* caulibus gracilibus elcrgatis pendulis teretibus foliiferis viridibus, foliis laxis 3-4-pollicaribus lineari-lanceolatis acuminatis vaginisque teretibus viridibus, caulibus floriferis multo longioribus aphyllis teretibus ad nodos vix incrassatis, vaginis pallidis, internodiis 1½- ad 2-pollicaribus, floribus ad nodos solitariis v. in pedunculo communi perbrevi 2-3, pedicellis gracilibus pollicaribus, ovario brevi, perianthio 2 poll. diametr. explanato albo apicibus foliolorum purpureo-roseis, sepalis petalisque patenti-recurvis convexis obtuse acuminatis, labello basi breviter convoluto, limbo cucullato obscure 3-lobo, marginibus undulatis, tubo intus flavo, limbo subacuto intus pubescente marginibus erosis, calcare semi-pollicari recto truncato.

D. amœnum, *Wall. in Lindl. Gen. et Sp. Orchid.*, p. 79, *et in Bot. Reg.*, 1874, Misc., p. 79; *Reich. f. in Walp. Ann.*, v. vi., p. 286.

? Limodorum aphyllum, *Roxb. Cor. Pl.*, v. i. p. 34, t. 41.

? Cymbidium aphyllum, *Swartz in Nov. Act. Ups.*, v. vi., p. 73, &c.; *Willd. Sp. Pl.*, v. iv., p. 100; *Roxb. Fl. Ind.*, v. iii., p. 462.

One of the earliest discovered, but latest imported species of the magnificent and now enormous genus to which it belongs; remarkable not only for its great beauty and the delicacy of the colours and texture of its flowers, but for its fragrance, which Wallich well described as exquisite, and not unlike that of *Olea fragrans*. Whilst referring this to *D. amœnum* of Wallich, I must enter a caution as to its being considered the *Limodorum aphyllum* of Roxburgh, which has been referred to it by Lindley and others. In the first place, Roxburgh's plant comes from a very different locality, namely, the Coromandel coast; in the second, it has no pink colouring towards the tips of the perianth-segments; in the third place, the flowers are solitary; and in the fourth, Roxburgh makes no mention of the sweet odour so characteristic of this plant. There is a sketch of *D. amœnum*, but of a form with a much narrower (perhaps unexpanded) lip amongst Cathcart's drawings of Sikkim plants preserved in the Kew Library, and I find a flower of it in Lindley's Herbarium from Chatsworth, but no good specimens any-

where. I cannot but suspect its being a variety of *D. primulinum*, together with the Coromandel plant and other allied forms.

The specimen from which the accompanying drawing was made was flowered by Mr. Bull, who received it from the Himalaya (probably Sikkim), where it was found at an elevation of 5000 feet. It flowered in June, 1874, in his nursery.

Descr. *Stems* pendulous, fascicled, one to two feet long, slender, clothed with pale appressed sheaths; internodes one and a half to two and a half inches long. *Leaves* three to four inches long, linear-lanceolate, acuminate, wavy; sheaths green. *Flowers* solitary, or two to three on a very short common peduncle at each node of the flowering-stem, two to two and a quarter inches in diameter; pedicels very slender, together with the very small ovary one inch long; bracts minute, ovate, acute. *Sepals* ovate-lanceolate, subacute, white, with a violet-purple blotch from the tip to one-third way down; spreading and recurved. *Petals* similar in shape and colour, but broader. *Lip* with a convolute tube, expanding into a trumpet-shaped mouth and broadly ovate limb that is minutely fimbriate round the edge; lateral lobes hardly distinguishable from the broad subacute terminal one, which is violet-purple, with three broad deeper-coloured veins, and white margins; concavity of the lip velvety and yellow, with a few purple streaks on each side; spur half an inch long, truncate. *Column* very short.—*J. D. H.*

Fig. 1, Pedicel, ovary, lip, and spore :—*magnified.*

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CONTENTS OF No. 371, NOVEMBER. 1875.

Tab. 6195.—PROTEINOPHALLUS RIVIERI.

„ 6196.—FERULA (EURYANGIUM) SUMBUL.

„ 6197.—CROCUS VELUCHENSIS.

„ 6198.—CARICA CANDAMARCENSIS.

„ 6199.—DENDROBIUM AMŒNUM.

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Tab. 6200.

CALOCHORTUS citrinus.

Native of California.

Nat. Ord. Liliaceæ.—Tribe Tulipeæ.

Genus Calochortus, *Pursh.* (*Baker in Linn. Journ.*, vol. 14, p. 302).

Calochortus (*Mariposa*) *citrinus*; bulbo ovoideo, caule corymboso 3-4-cephalo basin versus furcato, foliis linearibus semipedalibus glauco-viridibus, floribus suberectis, sepalis 1½ poll longis lanceolatis dorso viridulis facie flavidis prope basin maculatis, petalis bipollicaribus rotundato-cuneatis cuspidatis citrinis, facie haud zonatis prorsus pilis purpureis decoratis, supra unguem nudam foveolâ flavida dense barbata præditis, genitalibus perianthio duplo brevioribus, antheris cylindricis apiculatis filamento lanceolato æquilongis, **ovario clavato, stylis brevibus falcatis.**

This is a fine new species of that section of the genus *Calochortus* specially favoured by cultivators, which I have followed Professor Wood in calling *Mariposa*. The species known previously are *C. venustus*, *Leichtlinii*, *Gunnisoni*, *splendens*, *macrocarpus*, and *luteus*. They all come from either British Columbia, the Rocky Mountains, or California, and, with care, are hardy in our London gardens. The present plate was drawn from a plant which flowered last summer with Mr. G. F. Wilson in a cool greenhouse at Weybridge, the bulb of which was given to him by Mr. Elwes. All the species of this section agree with one another closely in their bulbs, leaves, and general habit. This one has the large flowers and acute anthers of *C. splendens*, but otherwise the flower is more like that of a large specimen of *C. luteus*, with which it agrees in ground-colour, but from which it differs considerably in decoration.

Descr. *Bulb* ovoid, under an inch thick, with a membranous tunic. *Stem* a foot or a foot and a half high, firm, terete, glaucous, 3-4-flowered, forked low down. *Leaves* tolerably firm in texture, linear, glaucous, those from the bulb half a foot long, those that subtend the branches similar but smaller. *Flowers* permanently erect. *Sepals* an inch and

a half long, lanceolate, acuminate, greenish and naked on the back, yellow on the face, with a small hairy brown spot near the base. *Petals* round-cuneate, a couple of inches broad and deep, rounded with a cusp on the outer border, bright lemon-yellow, the claw naked, above the claw is a round, conical, hairy yellow spot with a purple border, the rest of the face is without any zone or blotch, but covered with spreading purple, gland-tipped, bristly hairs. *Stamens* half as long as the petals; filament erect, lanceolate; anthers cylindrical, pale purplish-brown, apiculate, diverging, one-half to five-eighths inch long; pollen pale brown. *Ovary* clavate, under an inch long; stigmas short, falcate.—*J. G. Baker.*

Fig. 1, Stamen; 2, pistil; 3, gland-tipped hair from the face of the petal:—*all magnified.*

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Tab. 6201.

DIURIS alba.

Native of New South Wales.

Nat. Ord. Orchideæ.—Tribe Neottieæ.

Genus Diuris, *Smith;* (*Benth., Fl. Austral.*, vol. vi., p. 324).

Diuris *alba;* tuberibus lobatis, caule gracillimo, foliis paucis anguste linearibus gramineis acuminatis concavis, floribus 2-3, sepalo dorsali late ovato obtuso concavo albo, lateralibus deflexis dorsali 2-3-plo longioribus anguste linearibus obtusis viridibus linea media fusco-purpurea, petalis sepalo dorsali longioribus unguiculatis ovatis obtusis albis ungue fusco-purpureo, labelli lobis lateralibus subquadratis unidentatis intermedio multo majore trulliformi pallide roseo, carinis 2 a basi ad medium elevatis crassiusculis purpureo-punctulatis, staminodiis falcatis dentatis columnam brevem vix superantibus.

D. alba, *Br.*, *Prodr.*, p. 316; *Lindl.*, *Gen. & Sp. Orchid.*, p. 509; *Benth.*, *Fl. Austral.*, vol. vi., p. 325.

The beauty of the terrestrial Orchids in the Australian Colonies is proverbial. In spring and summer the meadows are in many places enamelled with them, and it is no unusual thing to find thirty or forty species in a comparatively limited area, comprised under the genera *Diuris*, *Thelemytra*, *Prasophyllum*, *Glossodia*, and *Pterostylis*, and in such quantities that bouquets may be made of them in any number, and I feel assured that in no other part of the world may so many different forms of Orchids be found in a given small area as in the Australian Colonies. Unfortunately, though easily procured and transported to Europe, they are cultivated there with great difficulty, flowering once only, if at all, and disappearing for ever after, a result probably due to our uncongenial seasons.

Of *Diuris* (of which the species figured is one of the least attractive kinds) but one species has been figured from specimens flowered in England, namely, the *D. maculata* (Tab. nost. 3156), though nearly a dozen other widely distributed species, some of great beauty, remain to be introduced.

D. alba is most closely allied to, if not a slender variety of *D. punctata*, Sm., differing in the flower not being lilac and spotted all over. It has also a more northern range, from New

South Wales to Rockingham Bay, whereas *D. punctata* ranges from the former district southward to Victoria; the flowers are usually much smaller than those here figured, but Clarence Bay specimens have them quite as large. The plant figured here flowered in August last in the open border from tubers sent by Thos. Moore, F.L.S., Director of the Sydney Botanic Garden.

Descr. *Tubers* as large as nuts, lobed. *Stem* eight to sixteen inches high, slender. *Leaves* shorter than the stem, usually two only, sometimes one or none, very narrow, linear, concave; sheaths about two, loose or appressed. *Bracts* two inches long, erect, acuminate, loosely sheathing. *Flowers* about two, very variable in size, two-thirds to three and a half inches in diameter from the tips of the petals to those of the lateral sepals. *Dorsal sepals* ovate, obtuse, concave, white; lateral deflexed, sometimes two and a half inches long, green with a brown-purple central stripe. *Petals* clawed, ovate, white, the claw brown-purple with white edges. *Lip* with two small subquadrate toothed lateral, and a large trapezoid mid-lobe, pale rosy-coloured or nearly white; disk with two raised lobed keels that are speckled with red. *Staminodes* falcate. *Column* very short.—*J. D. H.*

Fig. 1, Flower with sepals and petals removed :—*magnified.*

Tab. 6202.

GLADIOLUS Cooperi.

Native of Natal and the Cape.

Nat. Ord. Iridaceæ.—Tribe Gladioleæ.

Genus Gladiolus, *Linn.* (*Klatt in Linnæa*, vol. 32, p. 689).

Gladiolus *Cooperi;* bulbo globoso membranaceo-tunicato, foliis ensiformibus glabris acuminatis subcoriaceis valide nervatis, radicalibus sesquipedalibus, scapo robusto bipedali crebre bracteato, spica pedali laxe 8-12-flora, bracteis lanceolatis acuminatis, exterioribus 3-4 poll. longis, floribus arcuato-ascendentibus, tubo flavido anguste infundibulari 2½-3 poll. longo, limbi rubro-lutei segmentis tribus superioribus sub conformibus obovato-spathulatis acutis 1½-2 poll longis, tribus inferioribus multo minoribus lanceolatis acutis, genitalibus arcuatis perianthio triente brevioribus.

When Mr. Thomas Cooper was travelling in South Africa on behalf of Mr. Wilson Saunders, he paid special attention to these ensiform-leaved *Gladioli*, of the group of which *G. cardinalis* and *G. psittacinus* are the familiar garden representatives. He discovered, or at any rate brought into notice in Europe, no less than three very striking new species, of all of which bulbs were sent home and duly and successfully cultivated at Reigate, so that they all are now established as inhabitants of our gardens, enlarging materially the groundwork upon which hybridisers can carry forward their experiments. Of these we have already figured *G. Saundersii*, Tab. 5873, and *G. dracocephalus*, Tab. 5884, and this is the third. It has now been spread about in gardens for several years, but has never been botanically named or described. The plate was drawn from a specimen that flowered at Kew in September 1872. We have dried specimens in the Kew Herbarium from Natal, from Krauss and Gueinzius, and from Somerset, from Mrs. Barber. In the very decided inequality of the three upper as compared with the three lower perianth-lobes, it is most like *G. psittacinus*, Bot. Mag., Tab. 3032, from which it differs by its longer tube and spathe-valves, and decidedly acute perianth-lobes.

December 1st, 1875.

Descr. *Bulb* globose, with membranous tunics. *Radical leaves* about half-a-dozen, developed in a distichous rosette, erect, ensiform, glabrous, acuminate, a foot or a foot and a half long by an inch broad, glaucous-green, with very strong raised ribs. *Scape* stout, terete, two feet high, closely bracteated by reduced leaves. *Expanded spike* a foot long, of eight to twelve arcuate-ascending flowers. *Spathe-valves* firm, green, lanceolate, acuminate, the outer three to four inches long, the inner one rather shorter and narrower. *Perianth-tube* a narrow, yellowish-green funnel, two and a half to three inches long. *Limb* with close, purple-red, anastomosing, vertical lines on a yellowish groundwork, the three upper segments similar in size and shape, obovate-spathulate, decidedly acute, one and a half to two inches long by an inch broad, the two outer reflexed at the tip when the flower is fully expanded, the inner one permanently, falcate; three lower segments plain yellow or little striped with red, an inch long, lanceolate, acute, reflexing. *Genitalia* arching, two-thirds as long as the limb; anthers cylindrical, purplish-yellow, half an inch long; stigmatic lobes oblanceolate, spreading.—*J. G. Baker.*

Fig. 1, Anther and top of filaments; 2, stigmas and upper part of style:—*both magnified.*

Tab. 6203.

DECABELONE Barklyi.

Native of Little Namaqualand, S. Africa.

Nat. Ord. Asclepiadaceæ.—Tribe Stapelieæ.

Genus Decabelone, *Dcne.* (*Benth. et Hook. f., Gen. Plant*, vol. ii., p. 784, *ined.*; *Bot. Mag.*, 6115).

Decabelone *Barklyi;* caulibus ramisque crasso-carnosis cactiformibus angulato-costatis, costis sæpissime ad 12 spinosis, spinis tenuibus erectis setis lateralibus duabus deflexis armatis, corona staminea duplici. exteriore tubo stamineo affixa in lobos 10 filiformes apice globuliferos subæquales divisa, interiore squamis apicem versus attenuatis antheris adfixis squamulis brevibus bifidis interpositis.

Decabelone Barklyi, *Dyer, MSS.*

Under Tab. 6115 it was mentioned that the Royal Gardens, Kew, possessed specimens both living and in spirit, as well as drawings and analyses, from H. E. Sir Henry Barkly, Dr. Shaw, and Mrs. Barber, of a second species of *Decabelone* from Little Namaqualand. As was stated there it is closely allied to *D. elegans*, the flowers being extremely similar, but the branches have nearly twice the number of angles; and the two lateral setæ of the spines are more slender and deflexed instead of erect.

The first discovery of this interesting plant is due to H. E. Sir H. Barkly, who sent a sketch of the plant in January, 1874, having found it three years previously growing in the Karoo, near the Orange River. Shortly after Dr. Shaw, who, as well as M'Lea, had found it in the same locality, sent to Kew specimens in spirit, and a careful analysis. Not having seen the description of *Decabelone*, Dr. Shaw rightly recognised the generic distinctness of the plant from other *Stapeliæ*, and proposed that it should constitute a new genus, to be named in honour of the Governor of the Cape. I have endeavoured, as far as the specific name will allow, to give effect to Dr. Shaw's wishes.

The present plate is partly founded upon a fine drawing for which Kew is indebted to Mrs. Barber, partly upon speci-

mens which flowered at Kew during the past year, and which were sent by Sir H. Barkly.

Descr. *Stems* succulent, leafless, cæspitose, three to six inches high, with ten to twelve strongly marked angles furnished with processes each bearing one erect and two lateral deflexed slender white spines. *Flowers* borne as in *D. elegans*, occasionally two on a common peduncle, suberect; pedicels one-third to one-half inch. *Calyx* 5-lobed, lobes quarter of an inch long, linear-deltoid. *Corolla* two to three inches long, narrowly campanulate, tube slightly curved, marked much as in *D. elegans*; lobes deltoid, very acute, with occasionally an intermediate tooth. *Staminal-crown* double; exterior of ten similar segments connate at the base and slightly united in pairs, tapering into filiform, capitate, dark violet processes; interior of ten dissimilar processes, five slender and adnate to the anthers, upon which they are incumbent as in *D. elegans*, five alternating with these and one-third as long, broadly deltoid, and bifid. *Anthers* as in *D. elegans*.—*W. T. T. D.*

Fig. 1, Section through exterior staminal-crown, showing andrœcium viewed from above (*magnified*); 2, portion of staminal-crown viewed from within, on the right of the figure the place of attachment is shown of two anthers which have been removed, on the left an anther the form of which has been accidentally distorted by the lithographer; 3, pair of pollen-masses viewed from above (*magnified*).

1

2

3

W. Fitch del. et lith.

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Tab. 6204.

PERNETTYA Pentlandii.

Native of the Andes of South America.

Nat. Ord. Ericaceæ.—Tribe Arbuteæ.

Genus Pernettya, *Gaud.* (*Benth. et Hook. f., Gen. Plant.*, vol. ii., p. 582 *ined.*).

Pernettya *Pentlandii;* fructiculus ramosissimus, ramulis sparse setulosis glabrisve, foliis confertis breviter petiolatis ovatis acutis non mucronatis serrulatis rigide coriaceis supra lævibus, siccis subtus rugulosis, pedicellis axillaribus 1-floris foliis brevioribus v. longioribus glabris puberulis v. setulosis, bracteolis parvis situ variis, calycis lobis ovatis acutis fructiferis dorso tumidis carnosis ciliolatis, corolla globoso-ovoidea glabra, bacca pisiformi.

P. Pentlandii, *DC.*, *Prodr.*, vol. vii., p. 587 ; *Wedd.*, *Chlor. Andin.*, vol. ii., p. 170, t. 72, f. c.

P. angustata *et* P. parvifolia, *Benth.*, *Pl. Hartweg*, p. 219.

? P. purpurea, *D. Don*, *ex. G. Don. Gen. Syst.*, vol. iii., p. 837 ; *DC.*, *l.c.*

A little evergreen shrub, a native of the temperate and colder regions of the higher Cordilleras from Venezuela to Chili, ascending to near the limit of perpetual snow, and varying greatly in stature, habit, and size of leaf. The form figured here approaches to the var. *parvifolia* of Weddel (*P. parvifolia*, Benth.), which inhabits the Andes of Ecuador, as Pichincha and Cotopaxi, and has smaller leaves and short pedicels.

The curious intumescence of the back of the fruiting sepals of this species is a remarkable character, not noticed by any author, and perhaps not constant; it is worthy of remark, however, as showing a tendency to *Gaultheria*, in which the enlarged baccate fruiting calyx embraces the capsule, and in which genus the capsule becomes baccate in a few species, and thus shows a tendency towards the structure of *Pernettya*. In fact, except by the characters of the fruiting calyx and fruit, these two genera are not distinguishable. They have, however, very different geographical ranges, *Pernettya* being, with the exception of an anomalous Tasmanian species, confined to and abounding in the South American Alps, whereas *Gaultheria*, though equally or even more abundant on the Andean *Pernettya* region, extends to New Zealand, Australia, the Malayan Archipelago, and Indian Alps.

December 1st, 1875.

Pernettya Pentlandii was raised by J. Anderson Henry, F.L.S., from seeds sent from an elevation of 14,000 feet on the Quitonian Andes by his and our late correspondent, Dr. Jameson; it flowered in June, fruited in November, and proved quite hardy at Trinity Lodge, Edinburgh.

DESCR. A rigid, branched, small shrub. *Branches and branchlets* angled, setulose or glabrous, leafy. *Leaves* crowded or sparse, two-thirds of an inch long and under, ovate or ovate-lanceolate, acute, serrulate, not mucronate or pungent, glabrous, very coriaceous, shining, rugose beneath when dry; petiole very short; young ciliate-toothed. *Flowers* solitary, axillary, drooping; pedicels puberulous, longer or shorter than the leaves, red; bracteoles minute, few, scattered. *Calyx-lobes* ovate, acute, tumid and fleshy, but not otherwise much enlarged in fruit. *Corolla* one-third of an inch long, white, ovoid-globose; teeth minute, recurved. *Stamens* ten, filaments puberulous, dilated at the base; anthers with four short bristles. *Berry* the size of a large pea, dark blue-purple.—*J. D. H.*

Fig. 1, portion of branch, leaf, pedicel, and flower; 2, stamens; 3, ovary and disk; 5, fruit; 6, the same cut across transversely:—*all magnified.*

W Fitch del et Lith

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Tab. 6205.

CALATHEA leucostachys.

Native of Costa Rica.

Nat. Ord. Cannaceæ.

Genus Calathea, *Meyer;* (*Endl., Gen. Plant.*, p. 227).

Calathea *leucostachys;* tenuiter molliter villosa, caule robusto, foliis elliptico-oblongis utrinque rotundatis apice apiculatis sessilibus v. breviter et crasse petiolatis supra viridibus subtus costa excepta glabris sanguineo-purpureis, pedunculo brevi robusto, spica 3-5-pollicari, bracteis longe villosis subacute imbricatis tubo campanulato stramineo, lamina dilatata ampla recurva latiore quam longa, floribus inclusis albis brevissime pedicellatis, sepalis lineari-oblongis acutis pilosis tubum corollæ æquantibus, corollæ limbi segmentis subæqualibus oblongis subacutis valde concavis, labello petalis consimili, staminodiis petaloideis marginibus crispatis inflexis, anthera parva mucronata.

This is another fine Central American species of *Calatheu* introduced by Messrs. Veitch, to whom also is due the credit of introducing the *C. tubispatha* (Tab. nost. 5542) and *C. Veitchiana* (Tab. 5535). As a species the present comes nearest the *C. Warzewiczii*, Klotzsch, (Regel Gartenflora, 1866, t. 575), especially in the form and colour of the spike, bracts, and flowers, but differs wholly in habit, in being much more villous, and in the sessile or subsessile broader leaves.

The cultivated species of *Calathea* are now very numerous, and from their perenenial and highly-coloured foliage are deservedly most desirable plants for moist stove cultivation. As many as thirty-four species, exclusive of varieties, are enumerated in the "Supplementum ad indicem Seminum Ann. 1868, Hort. Bot. Imp. Petrop," as being under cultivation in European gardens, and judging from the extent of the genus in our herbarium, many more are yet to be introduced.

Calathea leucostachys flowered in Mr. Veitch's establishment at Chelsea in October, 1874, from plants sent from Costa Rica by Mr. Endres.

Descr. Whole plant more or less villous, except the under-surface of the leaf, of which the midrib only is so;

hairs long, soft, spreading, but not matted. *Stem* short, twelve to eighteen inches high. *Leaves* six to ten inches long, sessile or with short stout petioles, elliptic-oblong, rather variable in breadth, tip rounded and apiculate, base also rounded, rarely subcordate, upper surface deep green, under dark red-purple; principal nerves ten to twenty pair; sheaths appressed, green. *Spike* three inches long and upwards, cylindric-ovoid; peduncle very robust, short. *Bracts* softly villous, rather closely imbricate; tube three-quarters of an inch long, campanulate, pale yellow; blade spreading, recurved or almost revolute, white, much broader than long. *Flowers* hardly exceeding the bracts, sessile, white. *Sepals* pilose, upwards of an inch long, linear-oblong, acute, concave. *Corolla-tube* equalling the sepals, slender; limb one half an inch long; segments oblong, acute, very concave, nearly equal. *Staminodes* petaloid, with incurved crisped margins. *Anther* small, acute. *Stigma* broad on a stout, curved, torulose style.—*J. D. H.*

Fig. 1, Flower; 2 and 3, top of corolla-tube with its segments removed, showing the staminodes in position; 4, the same laid open, showing the style and anther:—*all magnified.*

INDEX

To Vol. XXXI. of the THIRD SERIES, or Vol. CI. of the Work.

Pl.	
6182	Allium narcissiflorum.
6170	Balbisia verticillata.
6143	Blumenbachia Chuquitensis.
6205	Calathea leucostachys.
6200	Calochortus citrinus.
6198	Carica candamarcensis.
6153	Colchicum luteum.
6183	Columellia oblonga.
6194	Crassula Bolusii.
6141	Crocus byzantinus.
6162	Crocus chrysanthus.
6168	Crocus Crewei.
6176	Crocus minimus.
6187	Crocus Boryi.
6197	Crocus veluchensis.
6175	Cypripedium Arcus.
6161	Cyrtopera sanguinea.
6203	Decabelone Barklyi.
6189	Delphinium Cashmirianum.
6199	Dendrobium amœnum.
6165	Dichorisandra Saundersii.
6174	Dietes Huttoni.
6184	Dion Edule.
6186	Draba Mawii.
6169	Dracæna Smithii.
6201	Diuris alba.
6145	Epidendrum syringothyrsis.
6181	Eranthemum hypocrateriforme.
6150	Erythrotis Beddomei.
6140	Eucalyptus cornuta.
6196	Ferula (Euryangium) Sumbul.
6148	Fourcroya Selloa.
6160	Fourcroya undulata.
6166	Galanthus Elwesii.
6202	Gladiolus Cooperi.
6151	Gustavia gracillima.
6164	Hemichæna fruticosa.
6192	Heteranthera limosa.
6142	Jamesia Americana.
6167	Kniphofia Macowani.
6146	Lilium Canadense, var. parvum.
6152	Masdevallia chimæra.
6159	Masdevallia peristeria.
6171	Masdevallia Estradæ.
6190	Masdevallia Davisii.
6178	Mertensia alpina.
6179	Michelia lanuginosa.
6144	Odontoglossum maxillare.
6163	Odontoglossum Warscewiczii.
6193	Oxalis arenaria.
6157	Pentstemon antirrhinoides.
6204	Pernettya Pentlandii.
6156	Phyllocactus biformis.
6185	Primula Parryi.
6195	Proteinophallus Rivieri.
6158	Pyrus prunifolia.
6149	Senecio macroglossus.
6154	Theropogon pallidus.
6177	Tulipa Greigi.
6191	Tulipa Eichleri.
6180	Typhonium Brownii.
6173	Vanda limbata.
6147	Veronica pinguifolia.
6172	Viburnum sandankwa.
6155	Wahlenbergia tuberosa.
6188	Wahlenbergia Kitaibelii.

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BOTANICAL MAGAZINE.

CONTENTS OF No. 372, DECEMBER, 1875.

TAB. 6200.—CALOCHORTUS CITRINUS.

„ 6201.—DIURIS ALBA.

„ 6202.—GLADIOLUS COOPERI.

„ 6203.—DECABELONE BARKLYI.

„ 6204.—PERNETTYA PENTLANDII.

„ 6205.—CALATHEA LEUCOSTACHYS.

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